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Gray Herbarium
Harvard University

✓ M

Received May 22, 1953
Bought

Cropper

This copy was originally given
to me by my sister-in-law Louisa

Cropper. It has now, to my delight,
come into the possession of
my friend the other field naturalist
Sir Maurice Abbot-Gaudron.

Theodore Green. Editor.

30 June 1914

Dear Eveline

Your assortment of wild flowers were very acceptable:
Orchis maculata, Spotted O. O. *latifolia*, Broad leaved O, with dark purple flowers. *Habenaria bifolia*, Lesser Butterfly O, the greenish yellow one. *Hesperis matronalis*, Dames Violet, is a crucifer and not a true violet. *Lotus pilosus*, the Greater Birds-foot trefoil. Honeysuckle. *Hypericum pulchrum*, the Pretty St. John's Wort. *Cotyledon umbilicus*, the Navel Wort. *Centaurea scabiosa*, the Greater Knapweed. *Carduus campestris*, a rare Thistle which does not grow up here. I return it so to identify it. If you can find a good plant of it please send me one with root, if it is not too much trouble. *Chrysanthemum leucanthemum*, Ox-eyed Daisy. *Chaerophyllum temulum*, the rough Chervil. I think that about completes the list.

love from us all

Madore Green

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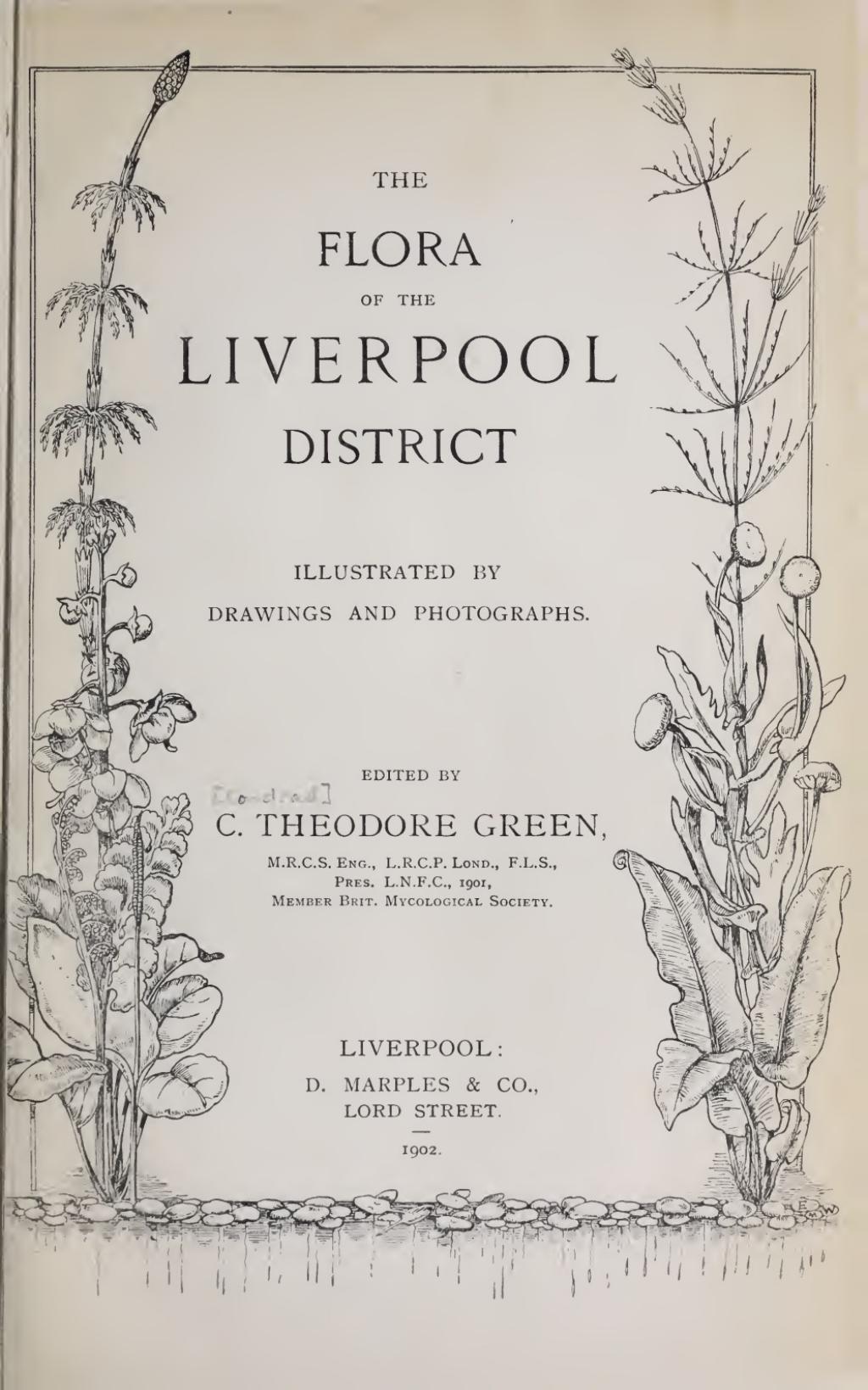




HOAR FROST AT BROMBOROUGH.



SHOTWICK VILLAGE.



THE
FLORA
OF THE
LIVERPOOL
DISTRICT

ILLUSTRATED BY
DRAWINGS AND PHOTOGRAPHS.

EDITED BY
[C. Theodore Green]
C. THEODORE GREEN,
M.R.C.S. ENG., L.R.C.P. LOND., F.L.S.,
PRES. L.N.F.C., 1901,
MEMBER BRIT. MYCOLOGICAL SOCIETY.

LIVERPOOL:
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LORD STREET.
—
1902.



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THE WILD FLOWERING PLANTS AND FERNS GROWING
WITHIN FIFTEEN MILES OF THE LIVERPOOL TOWN HALL,
AND TWO MILES OF SOUTHPORT.

ILLUSTRATIONS:—800 DRAWINGS OF THE PLANTS, BY MISS
E. M. WOOD, BOTANICAL REFEREE, L.N.F.C.

TWENTY-ONE PHOTOGRAPHS OF THE SCENERY OF THE
DISTRICT, &c., BY J. W. ELLIS, M.B., CH.B., VIC., F.E.S., &c.

THE GEOLOGY OF THE DISTRICT, BY J. J. FITZPATRICK, QUEEN'S
PRIZEMAN IN GEOLOGY, &c.

METEOROLOGICAL NOTES AND TABLES FOR SOUTHPORT,
LIVERPOOL, AND CHESTER, BY REV. J. CAIRNS MITCHELL, B.D.,
F.R.A.S., &c.

INDEX OF SCIENTIFIC AND POPULAR NAMES OF THE
PLANTS.

LARGE MAP OF THE DISTRICT.





SOME WORKERS OF THE FIELD CLUB, 1901.

MR. LAVEROCK, MR. HOLT, DR. ELLIS, MR. FITZPATRICK,
MR. DAVIES, DR. GREEN, MISS WOOD.

INTRODUCTION.

SOURCES OF THE LIVERPOOL FLORA.

DR. W. WITHERING, F.R.S., published his *Arrangement of British Plants*, in six volumes, between 1776 and 1818. He gives local stations for some of our plants. His work is referred to in these pages as (W).

Mr. T. B. HALL published, in 1845, the first local *Flora of Liverpool*. His work is referred to as (H).

Dr. J. DICKINSON, in 1851, issued a second Flora of Liverpool in the *Transactions* of the Literary and Philosophical Society of Liverpool. This was followed, in 1855, by an extensive supplement. His work is referred to as (D).

Since the latter date, various articles and lists relating to the botany of the district have been published in the *Transactions* of local Societies, and in different Natural History publications.

THE LIVERPOOL NATURALISTS FIELD CLUB, which was founded in 1860, published, in 1872, the well known *Flora of Liverpool*, which was compiled from the above sources, together with the observations of a committee who explored the district for this purpose.

This Club added three appendices to this *Flora* in 1873, 1875, and 1887 respectively, and, since then, some additions have been published in the annual *Proceedings* of the Club.

During the thirty years that have elapsed since the publication of the last *Flora*, some species new to the district, and many new stations for species already noted, have been observed; and also some species have, it is feared, become

extinct, or have become much more scarce. Reasons for the latter are not far to seek:—

1.—Owing to the enormous growth of population on both sides of the Mersey, buildings now occupy the former stations of many notable plants.

2.—Farming is done better than it used to be; the land is better drained, waste land is reclaimed, cultivated ground is kept more free from “weeds,” the great yawning ditches covered over by straggling hedges are mostly things of the past, and even “common” lands and roadside borders are not so extensive as they used to be, despite the exertions of the Wirral Footpaths and Open Spaces Preservation Society. Owing to the more careful cleaning of seeds, “casuals” are now-a-days less frequently met with in the cultivated fields.

3.—Nor should we omit to notice the wholesale depredations of herb and fern gatherers, and also of unwise field naturalists, who, with a passing fancy, pull a plant up by the roots, and presently, wearying of it, drop it on the road where it has no chance to propagate its species. I fear, also, that the prize once given by the Field Club for the “three rarest plants,”—now happily discarded these ten years—is responsible for the diminution if not extinction of some of our most notable plants, such as the Lycopods.

From a consideration of the foregoing, it will be conceded that a new edition of our Flora is required.

With this end in view a committee was appointed by the Liverpool Naturalists’ Field Club to revise the old Flora, Appendices, &c.

The following members of the Club served upon it in 1893-4, viz.:—

Mr. Robert Brown, past President and Botanical Referee.

Mr. A. K. Bulley, Member of the General Committee.

Dr. C. Theodore Green, F.L.S., President, 1901.

Dr. J. W. Ellis, F.E.S., past President and Secretary.

Mr. J. Mackarell, past Secretary.

Mr. W. H. Holt, past President.

Miss E. M. Wood, Botanical Referee.

Some critical genera, such as *Rubus* and *Rosa*, &c., were not revised by this committee, nor was much attention paid to varieties or sub-species which now-a-days tend to become so numerous. The plan adopted was for each member in turn to write out a few pages of the old Flora, &c., at home. These were read out and amended at the next session of the committee. This method was continued until the book was written out. These rough MSS. were then left as they were, as there were no funds available for their publication. Eight years have elapsed, and as no one else appeared who would devote the necessary labour and capital to the production of the new edition, the Committee of the Liverpool Naturalists' Field Club authorised the present editor to undertake the work at his own charges.

As that work, which has been a labour of love, is now finished, it may be pointed out that this edition is not the mere catalogue of Plant and Locality that most local Floras are. The present editor has long felt that in order properly to study the plants of a given area, data should be given for considering the conditions under which they flourish. He therefore considers that he has been fortunate in obtaining the collaboration of the following, viz:—

Mr. J. J. FITZPATRICK has written a most interesting and instructive chapter descriptive of the soil and rock of our district.

The Rev. J. CAIRNS MITCHELL, B.D., F.R.A.S., has, with much labour, supplied meteorological notes and tables shewing the climatic influences at work at Southport, Liverpool and Chester.

Dr. J. W. ELLIS, F.E.S., past President of Liverpool Photographic Society, at much expenditure of both time and money to himself, has taken photographs of many of our "happy hunting grounds," so that strangers may understand the nature of our country, its sandhills, moors, ponds and woods.

The other special features of this edition are as follows:—

Through the great generosity of a very old member of the Field Club, Mr. CHARLES GATEHOUSE, it has been possible to provide illustrations of most of our local plants, drawn from nature by the able hand of Miss E. M. Wood, Botanical Referee to the Field Club.

A good map of the district is inserted.

A copious index has been provided, shewing both the Latin and English names of plants, with many cross references, having some 1,760 entries, as against 463 (Latin genera only) in the edition of 1872.

The inclusion of many casual plants of both British and foreign origin.

The area for description is as follows: the parts of Lancashire and Cheshire, and the littoral of Flintshire, within a radius of fifteen miles from the Liverpool Town Hall, making an exception with regard to Southport, in taking an additional area of two miles around that town. The addition of Southport is made on account of the many interesting plants found there, and because the same ground was included in the *Flora* of Dr. Dickinson, and that of 1872.

The portion of Flintshire that is included has not been fully observed, nor all its plants noted, chiefly owing to the difficulty of access from Liverpool and Wirral.

On the Wirral side of the Dee rather an anomalous condition obtains, for the bed of the river now lies some two miles S.W. of the position it occupied when the county

boundaries of Cheshire and Flintshire were fixed, therefore the flat alluvial plain, appropriately known as "The Sealands," and which extends from near Burton Point to near Chester; and which lies between the present bed and the ancient bank of the Dee, is really in Flintshire, although on the Cheshire side of the river.

TOTAL AREA about 500 square miles. Coast line about 80 miles.

CASUALS.—There is probably no district in the kingdom which is so rich in casual plants of both British and foreign origin as ours, owing to the immense over-sea traffic to the port of Liverpool.

When ships arrive in ballast, their contents are deposited about the docks, and thus many species find a home, very temporary in most cases, but some show signs of becoming naturalised, as they recur in most years about the docks on both sides of the Mersey, and the canal banks, especially about Aintree.

When recording casuals and the rarer species, dates should always be given. In the present work this has been done whenever possible.

The arrangement of the orders, genera and species is that of the 8th edition of the *London Catalogue of British Plants*, 1890. This edition was followed by the Flora Committee of 1893, and the present editor has not altered the nomenclature so as to harmonise with the later edition on account of the too numerous alterations and unfamiliar terms therein employed, except in a few instances.

The following terms are employed to indicate the claim each species has to a place on our list, viz.:—

NATIVE, indigenous to the "Liverpool District."

COLONIST, a plant indigenous to Britain, but not native in this district.

DENIZEN, an escape from cultivation.

CASUAL, a plant, either British or foreign, that only appears for a season or two.

ALIEN, a plant of non-British origin, whether naturalised or not.

The following abbreviations are used, showing the duration of a plant, viz. :—A, annual; B, biennial; P, perennial; the time of flowering by the numerals I to XII, for the months; and the counties, L., Lancashire; C., Cheshire; F., Flintshire.

The editor desires here to thank his collaborators for their personal help, given so freely, both on his own behalf, and also on that of the entire district, especially Dr. J. W. Ellis, F.E.S., Mr. J. J. Fitzpatrick, Rev. J. Cairns Mitchell, B.D., F.R.A.S., and Mr. J. A. Wheldon, F.L.S.; and also Messrs. H. Bell, J.P., A. K. Bulley, H. H. Hinson, A. P. Thomas, and Col. C. A. Whitney, V.D., whose donations helped forward the work; and especially Mr. C. Gatehouse, by whose generosity we are able to show figures for nearly all the plants.

To those, and they are many, whose work in the world brings sense of weariness, let me offer the solace that the study of nature brings, so well expressed by Longfellow, when he wrote of that student of nature, Charles Kingsley—

And Nature, the old Nurse, took
The child upon her knee,
Saying, “Here is a story book
Thy Father has written for thee.

“Come wander with me,” she said,
“Into regions yet untrod,
And read what is still unread
In the manuscript of God.”

And he wandered away and away
With Nature, the dear old Nurse,
Who sang to him night and day,
The rhymes of the Universe.

And whenever the way seemed long,
Or his heart began to fail,
She would sing a more wonderful song
Or tell a more wonderful tale.

The editor will be very glad to receive notice of any errata or omissions that may be found in this book; and also notice of any new species, whether native or casual, giving the locality and date; or any new stations of the rarer plants already noted; or of the extinction of any of the present records.

C. THEODORE GREEN.

OXTON,

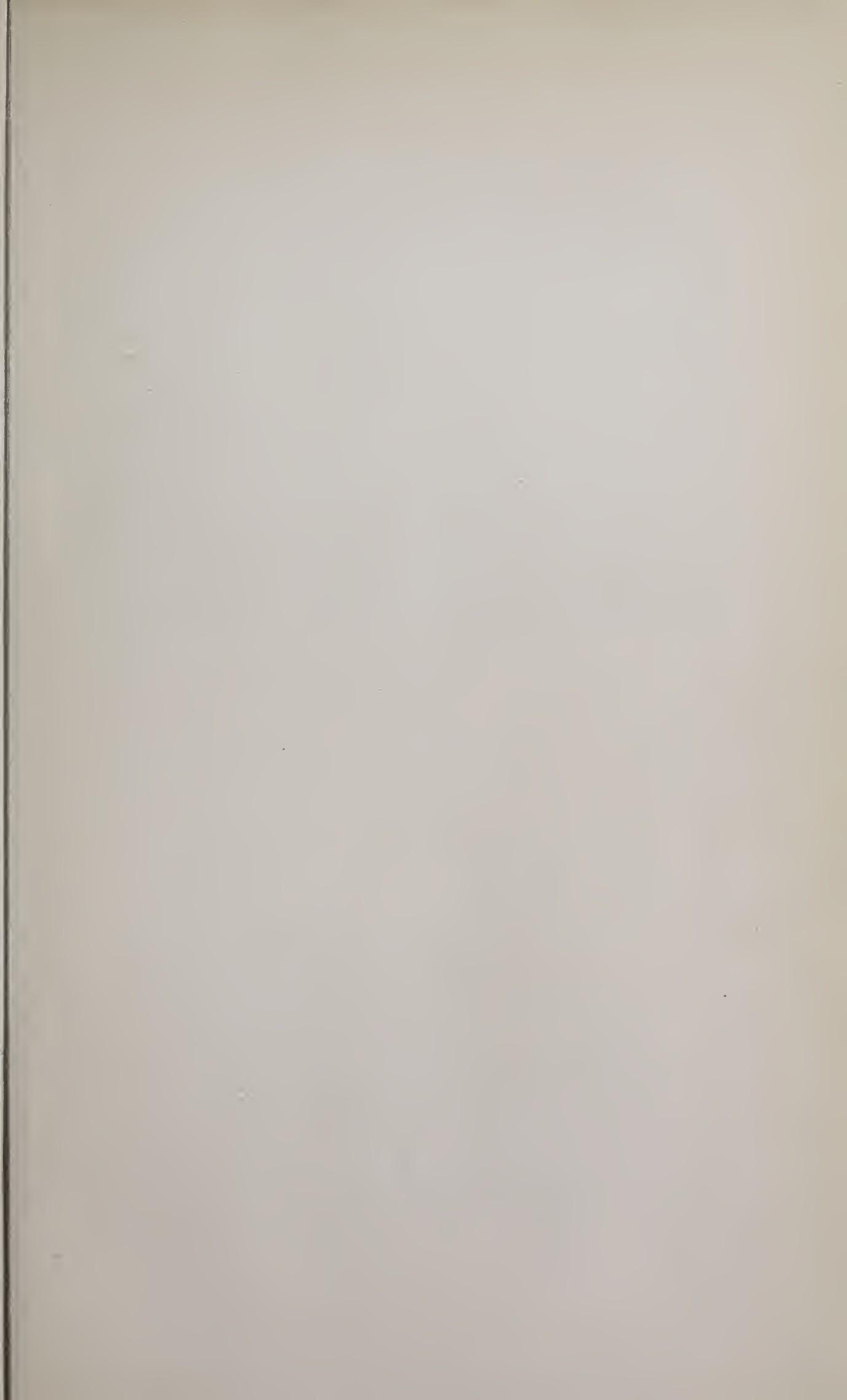
CHESHIRE, 1902.

NAMES OF CONTRIBUTORS TO THE FLORA, WITH THE ABBREVIATIONS USED.

Dr. W. Withering's <i>Flora</i> , 1776-1818	- - - - W.	R. D. Brown	- - - - R. D. B.
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A STUDY OF HYACINTHS—SPEKE WOODS.



SPEKE HALL—SOUTH FRONT.

THE
FLORA OF LIVERPOOL.

DESCRIPTIONS AND
DRAWINGS.



Fig. 1. CLEMATIS VITALBA.



Fig. 2. THALICTRUM MINUS.



Fig. 3. THALICTRUM FLAVUM.



Fig. 4. ANEMONE NEMOROSA.

Class I.—DICOTYLEDONES.

Division I.—Thalamifloræ.

RANUNCULACEÆ.

Clematis (L.).

- C. Vitalba**. (L.). *Fig. 1.* Travellers' Joy. Denizen. Shrub. VII. Hedges and thickets. Occasionally found, but always introduced, or an escape from cultivation.
C. A large trailing shrub on the sandhills between Wallasey and Leasowe (Miss W.; Dr. E.).
F. Several creeping bushes among the stones on the East Cop at Queensferry (R.B.).

Thalictrum (L.). Meadow-Rue.

- T. minus** (L.). *Fig. 2.* Lesser Meadow-Rue. Native. P. VI, VII.
a. maritimum (*Syme*).

Sandhills and claybanks. Rare and local.

C. Little Eye and Hilbre (H.). Sandhills close to the shore at West Kirby (F.M.W.). At intervals along the river bank between West Kirby and Heswall (J.E.B.).

NOTE.—The plant growing on the claybanks of the River Dee differs considerably in habit from that found at Hilbre and West Kirby, and is probably *T. montanum* (*Wallroth*). It agrees also with *T. calcareum* (*Jordan*).

- T. flavum** (L.). *Fig. 3.* Great or Yellow Meadow-Rue. Native. P. VI, VII.

Wet fields and ditch sides. Frequent.

L. Banks of River Mersey below Speke Hall. Between Lydiate Railway Station and River Alt.

C. Ditches about Leasowe and Great Meols, and in the Langfields between Hoylake and West Kirby. Between Ince and River Gowey. Ditch sides below Helsby.

Anemone (L.).

- A. nemorosa** (L.). *Fig. 4.* Wood Anemone or Wind Flower. Native. P. III-V.

Woods and bushy places, common. In pastures, occasional.

Adonis (L.).

- A. *autumnalis* (L.). Autumnal Pheasant's Eye. Alien. A. VII.
 Cornfields, very rare. Introduced with seed.
 L. Has been found at Crosby (H.).
 C. Gillbrook (H.). 1860, Sutton (Miss L.).

Ranunculus (L.). Crowfoot.

- R. *circinatus* (Sibth.). *Fig. 5.* Rigid-leaved Water Crowfoot. Native. P. VI-VIII.

Ponds and ditches, occasional.

L. 1875, Ditches between Hightown Railway Station and Lady Green (R.B.).

C. Ditches about Bidston Marsh (H.; Miss W., 1893). Deep pond by Park Road North, Birkenhead (H.S.F.). 1875, Ponds and ditches about Leasowe, and in the Birket near Great Meols (F.M.W.; R.B.). Near Raby (F.M.W.). Parkgate (Mr. Pleasant.). Ditch between Ince and River Gowey; near Ellesmere Port; inland of Stanney Mill (R.B.).

- R. *fluitans* (Lam.). *Fig. 6.* River Crowfoot. Native. P. VII, VIII.
 Running water. Very rare.

C. At intervals in the S. U. Canal between Mollington Viaduct and Chorlton Bridge (Lord de T.; F.M.W.). 1888, abundant in Thornton Brook, about one mile west of Ince (R.B.).

- R. *trichophyllum* (Chaix.). Water Fennel. Native. P. V-VII.
 Ponds and ditches. Rare.

C. Between Thurstanston and River Dee (R.B.). Near Wilaston (Dr. G.). From Bidston to Leasowe (F.M.W.).

- R. *Drouetti* (Godr.). Drouet's Water Crowfoot. Native. P. V-VII.
 Ponds and ditches. Rare.

L. Ditch by the roadside between Great Crosby and Thornton (F.M.W.).

C. Ditch between Bidston and Leasowe (F.M.W.). Bidston Marsh (Dr. G., 1895); 1889, Ditch by the footpath from Great Meols to New House Farm, after crossing the railway (R.B.).

- R. *heterophyllus* (Web. ex p.). Various-leaved Water Crowfoot. Native. P. V-VIII.

Ponds and ditches. Common.

- R. *diversifolius*.

L. 1899, Ditches at Lydiate (J.A.W.).

NOTE.—In *Top. Bot.*, ed. ii, this species is only recorded in 60, S. Lancs., and 58, Chester. It should therefore be further looked for on both sides of the Mersey.



Fig. 5. RANUNCULUS CIRCINATUS.



Fig. 6. RANUNCULUS FLUITANS

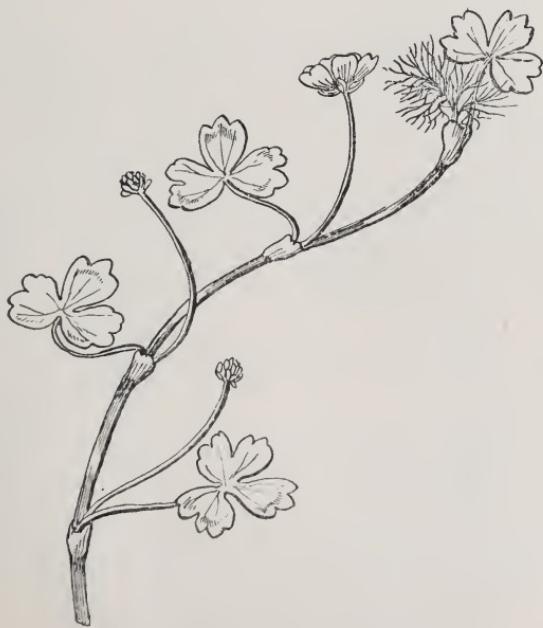


Fig. 7. RANUNCULUS FLORIBUNDUS.

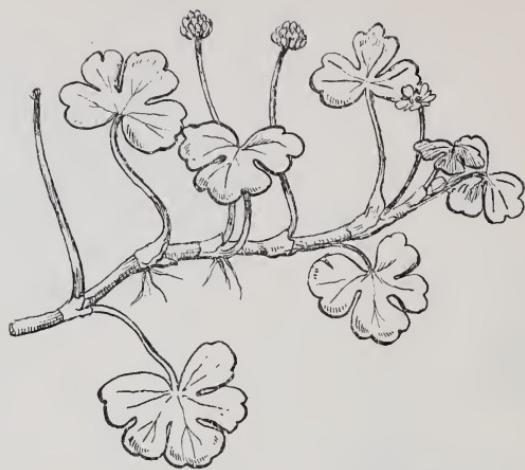


Fig. 8. *RANUNCULUS LENORMANDI*.



Fig. 9. *RANUNCULUS SCELERATUS*.



Fig. 10. *RANUNCULUS LINGUA*.

R. peltatus (*Schrink.*). Large-flowered Water Crowfoot. Native. P. IV-VIII.

Ponds and ditches. Common.

c. floribundus (*Bab.*). *Fig. 7.*

L. Near Formby (R.B.).

C. Bidston Ford (F.M.W.). Willaston; Ness; Whitby (Dr. G.).

R. Baudotii (*Godr.*). Baudot's Water Crowfoot. Native. P. V-VIII.

Ponds and ditches near the sea. Rare.

L. Pond near old Formby Church, near the coast (J.H.L.).

C. About the upper part of Wallasey Pool and Bidston Marsh (F.M.W.). 1895, Ponds about Willaston and Great Saughall (Dr. G.). 1888, Ince Marsh (R.B.).

R. Lenormandi (*F. Schultz*). *Fig. 8.* Lenormand's Mud Crowfoot. Native. P. V-VIII.

Shallow ditches. Rare.

L. Wavertree (D.). Aintree (F.M.W.). 1875, Ditches between Little Melling and Ashcroft Farm; Pond a short distance beyond Scarth Hill towards Bickerstaffe (R.B.). 1888, Damp hollow S.E. of Upholland (Field Club). Around Skelmersdale (Rev. G.).

C. Ditch by the side of Upton Road near Claughton Village; and in ditches on Oxton Heath (F.M.W.). 1894, confirmed (J.A.W.).

R. hederaceus (*L.*). Ivy-leaved Mud Crowfoot. Native. P. IV-IX.

Shallow ditches, ponds, and on mud. Common.

R. sceleratus (*L.*). *Fig. 9.* Celery-leaved Crowfoot. Native. A. V-IX.

By and in ditches and ponds. Common.

R. Flammula (*L.*). Lesser Spearwort. Native. A. VI-IX.

In ditches and wet places. Very common.

b. pseudo-reptans (*Syme*).

L. Upholland (Rev. G.).

C. Oxton (Dr. G.). Thornton (Miss W.).

F. Behind Flint (R.B.).

R. Lingua (*L.*). *Fig. 10.* Greater Spearwort. Native. P. VI-VIII.

In ditches and marshy places. Occasional.

L. Crosby (W.). Formby; Southport (D.). At Sankey in an old pond near the Liverpool and Warrington highway (J.P.). Pond on the W. slope of Billinge Beacon; 1875, Ditch near Rainford Moss; 1889, Ditches between Lydiate and River Alt (R.B.). Ditch at Upholland (Rev. G.).

C. Ditches at Norton (J.P.). Frodsham (J.F.R.). Raby (W.P.T.). The Langfields near West Kirby; Wimbolds Trafford (F.M.W.; H.S.F.). Ponds near Willaston; and near Mollington (Dr. G.).

R. auricomus (*L.*). *Fig. 11.* Goldilocks or Wood Crowfoot. Native. P. IV, V.

Woods and thickets. Occasional.

L. In the woods at Croxteth; Woods at Deysbrook, West Derby; and near Wavertree (D.). Kirkby.

C. In the Weaver Valley (J.F.R.). In Prenton Vale (F.M.W.; H.S.F.). 1877, Lane near Gayton; and near Leighton Hall; about Shotwick Dale and the Queensferry Road; Lane from Puddington to the shore; By a footpath on E. side of Mollington Railway Station; Crabwall Dell between Mollington and L. Saughall (R.B.).

R. acris (*L.*). Meadow Crowfoot or Buttercup. Native. P. V-VIII. In fields and by waysides. Very common.

b. Boreanus, Jord. (*L.*). In several places about Walton and Aintree (J.A.W.).

R. repens (*L.*). *Fig. 12.* Creeping Crowfoot or Buttercup. Native. P. V-VIII.

In damp fields and roadside ditches. Very common.

R. bulbosus (*L.*). *Fig. 13.* Bulbous Crowfoot or Buttercup. Native. P. V-VIII.

Fields, sandhills. Very common.

R. Sardous (*Crantz*). Hairy Crowfoot or Buttercup. Native. A. V-VIII.

(**R. hirsutus**) (*Curt*). Waste land, fields, roadsides. Occasional.

L. Garston (H.). Crosby; Formby; 1863, Southport (D.). Sandhills about Ainsdale, very small (F.M.W.; H.S.F.). Ditton Marsh (T.G.).

C. Bidston Heath (H.). Near Wallasey Pool (D.). Waste places about Claughton Village and Saughall Massie; Shingle S. of Denhall Colliery (Lord de T.; F.M.W.; &c.). Roadside between Great and Little Storeton (R.B.).

R. parviflorus (*L.*). Small flowered Crowfoot or Buttercup. Native. A. V-VII.

Dry banks, cornfields. Very rare.

L. Has been found at Crosby and Bootle (W.).

C. Cornfields near Upton; roadside on Grange Hill, West Kirby; sandy lanes about Hoylake, 1864; Frankby (D.). 1860, By the side of Upton Road near the cutting (F.P.M.; H.S.F.), now lost.



Fig. 11. RANUNCULUS AURICOMUS.



Fig. 12. RANUNCULUS REPENS.



Fig. 13. RANUNCULUS BULBOSUS.



Fig. 14. RANUNCULUS FICARIA



Fig. 15. CALTHA PALUSTRIS.



Fig. 16. AQUILEGIA VULGARIS.

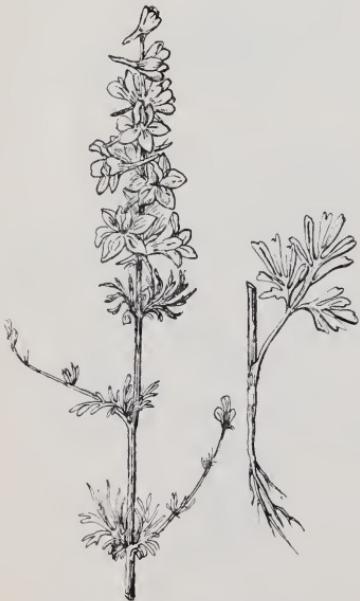


Fig. 17. DELPHINIUM AJACIS.



Fig. 18. BERBERIS VULGARIS.

R. arvensis (*L.*). Corn Crowfoot. Colonist. A. VI-VIII.
Cornfields. Occasional.

NOTE.—Has been reported from time to time in various parts of the district, according to cultivation.

C. 1896, Holm Lane, Oxton (Miss H. H.; Dr. G.).

R. Ficaria (*L.*). *Fig. 14.* Pilewort or Lesser Celandine. Native.
P. IV-VI.

Damp shady places. Very common.

NOTE.—Our plant is the variety, *divergens* (F. Schultz).

R. Pennsylvanicus has appeared as a casual at Birkenhead Docks.
(H.S.F.).

Caltha (*L.*).

C. palustris (*L.*). *Fig. 15.* Marsh Marigold, Water-Golden.
Native. P. III-VI.

By ditch and pond sides, marshes and wet meadows.

a. *vulgaris* (*Schott*). Common.

b. *Guerangerii* (*Bureau*). Has been found with us.

c. *minor* (*Syme*).

L. Speke (T.G.).

Aquilegia (*L.*).

A. vulgaris (*L.*). *Fig. 16.* Columbine. (?) Native or denizen.
P. V, VI.

Woods, &c. Very rare.

L. By the brookside in Lathom New Park, and several other places about Lathom in dry situations (T.W.).

C. In Bromborough Woods near the railway (W.H.H.; Rev. H.).

NOTE.—Probably originally introduced, but now naturalised.

Aconitum (*L.*).

A. Napellus (*L.*). Monkshood. Alien. P. VI.

NOTE.—Has been recorded, but only as an escape from cultivation.

Delphinium (*L.*).

D. Ajacis (*Reich.*). *Fig. 17.* Larkspur. Alien. A. VI-IX.

L. 1880, Birkdale sandhills (Dr. G.).

C. 1872, Abundant amongst rye near the path from Hoylake to the Hill Houses, West Kirby (F.M.W.; H.S.F.).

D. Consolida (*L.*). Has been recorded, but only as an escape from cultivation.

Authorities.—For *R. acr.*'s and its segregates, see F. Townsend F.L.S., in *Journ. Bot.*, 1900, p. 379. For the Batrachian Ranunculi, see Hiern's *Key*, and H. and G. Groves.

BERBERIDACEÆ.

Berberis (*L.*).

B. vulgaris (*L.*). *Fig. 18.* Barberry. (?) Native or denizen. Shrub V-VIII.

Hedges and woods. Rare.

L. Knowsley woods; hedges at Aigburth; Simmonswood Moss, very stunted and truly indigenous (*D.*). One bush in a field on the east side of the railway between Waterloo and Crosby (*F.M.W.*; *R.B.*).

C. Bromborough, &c. (*D.*). Large hedges of it at Kingsley; Netherton, sparingly (*J.F.R.*). 1875, Several bushes in Heath Lane, Stoke (*R.B.*); there in 1901 (*Dr. G.*).

NYMPHÆACEÆ.

Nuphar (*Sm.*).

N. Luteum (*Sm.*). *Fig. 19.* Yellow Water Lily. Brandy Bottle. Native. P. VII, VIII.

Ponds and streams. Occasional.

L. In River Alt at Formby (*W.*). In the same stream at Altcar and Maghull (*r.w.*). Southport (*D.*). In a pond near the large stone quarry at Knowsley.

C. Near New Ferry (*H.*), now gone. In the river that runs through Thornton Marsh (*D.*). Frodsham (*J.F.R.*). River Gowey at Plemstall (*R.B.*). Pond at Woodchurch Rectory; pond by Hadlow Road Station, (?) planted there (*Dr. G.*).

Nymphaea (*L.*).

N. alba (*L.*). *Fig. 20.* White Water Lily. Native. P. VII.

In ponds and streams. Frequent.

L. Speke; Hale; West Derby.

C. In numerous ponds about Hooton, Willaston, Ledsham, and Capenhurst.

PAPAVERACEÆ.

Papaver (*L.*).

P. somniferum (*L.*). White or Garden Poppy. Alien. A. VII.

(*P. hortense*, *Hussenot*).

Cornfields. Rare.

L. 1848, Sefton (*D.*). Hale (*H.S.F.*). Sandhills at Hall Road. 1892, Railway banks at Aintree (*J.A.W.*).

C. 1863, The Sandcroft, Claughton (*F.M.W.*).

NOTE.--In all cases it arises from introduction with seed.



Fig. 19. *NUPHAR LUTEUM.*



Fig. 20. *NYMPHÆA ALBA.*



Fig. 21. *PAPAVER RHÆAS.*



Fig. 22. *PAPAVER DUBIUM.*



Fig. 23. PAPAVER ARGEMONE.



Fig. 24. GLAUCIUM LUTEUM.



Fig. 25. CHELIDONIUM MAJUS.



Fig. 26. CORYDALIS LUTEA.

P. Rhaeas (*L.*). *Fig. 21.* Scarlet Poppy. Native. A. VI, VII.
Cornfields, cultivated ground, and sandy places. Frequent.
Especially common about Great Meols and Great Saughall.

P. dubium (*L.*). *Fig. 22.* Long smooth-headed Poppy. Native.
A. VI, VII.

a. *P. Lamottei* (*Bureau*).

Cornfields and cultivated ground. Common.

b. *Lecocqii* (*Lamotte*). 1872, Sefton Park (J.H.L.). Hale (T.B.).

P. Argemone (*L.*). *Fig. 23.* Long prickly-headed Poppy. Native.
A. V-VII.

Cornfields, roadsides and waste places. Common.

Glaucium (*Tournef.*).

G. flavum (*Crantz*). *Fig. 24.* Yellow-horned Poppy. Native.
B. or P. V-VIII.

Seashores. Occasional.

L. North shore, near the mouth of River Alt (W.). Near the Grange landmark, Formby; Southport (D.). All the above places probably refer to the same locality. It has not been seen of late years in the Lancashire portion of the district.

C. Parkgate and Hoylake (D.). New Brighton (H.E.S.). Burton Rocks (J.S.). 1877, Shore of River Dee, between Burton Point and Denhall (R.B.). 1886, A single plant between Bebington and Raby Mere (R.H.D.).

Chelidonium (*L.*).

C. majus (*L.*). *Fig. 25.* Greater Celandine. Native. P. V-VIII.
Hedgebanks, &c., generally inland, and especially about old villages. Occasional.

L. Allerton (H.). Southport; Aigburth; Garston; West Derby; Mossley Hill (D.). Dry banks, Castle Lane, Lathom (T.W.). Aintree; Old lane in Formby Village (F.M.W.). Hedgebanks at Hightown and Dungeon (R.B.).

C. Thornton; Eastham (D.). Frodsham (J.F.R.). Near Gayton Hall (R.B.). About Backford; Capenhurst; Hooton; Willaston; Puddington; Great Saughall; Upton; near Birkenhead (Dr. G.).

FUMARIACEÆ.

Corydalis (*D.C.*).

C. lutea (*D.C.*). *Fig. 26.* Yellow Fumitory. Denizen. P. VI-VIII.
On old walls. Very rare. Either planted or an outcast.
L. On an old wall at Broadgreen (D.). (?) Extinct.

C. Naturalised on an old wall at Owen's Farm, Little Neston (R.H.D.). Confirmed, 1901 (Dr. G.).

F. Naturalised on a wall behind Mostyn (R.B.).

C. claviculata (*D.C.*). *Fig. 27.* White Climbing Fumitory. Native. P. VI, VII.

In woods and bushy places, generally in hilly districts. Occasional.

L. Crosby (H.). Southport; Formby; near Gill Moss Chapel (D.). Billinge Hill, very sparingly (T.W.).

C. Upton (D.). Frodsham (J.F.R.). Helsby Hill, and extending towards Alvanley (R.B.). In several places about Bidston Hill (F.M.W.; &c.). Dibbinsdale (Dr. G.).

Fumaria (*L.*).

F. pallidiflora (*Jord.*). *Fig. 28.* Rampant Fumitory. Native. A. VI-IX.

Hedgebanks and cultivated ground. Rare.

L. Ormskirk, very sparingly (F.M.W.).

C. 1859, Hedgebank at Poulton (H.S.F.), now perhaps extinct. 1866, Garden at Prenton Hall; West Kirby (F.M.W.; H.S.F.). 1882, By the footpath between Brimstage and New Hall (J.V.).

b. Boræi (*Jord.*). Cultivated ground. Very rare.

L. This appears to be a frequent sub-species in S. Lancashire (F.M.W.).

C. 1862, In a wheat field at West Kirby (F.M.W.). About Newton and Frankby (Dr. G.).

F. confusa (*Jord.*). Native. A. VI-IX.

Cultivated ground and borders of fields. Common.

F. officinalis (*L.*). *Fig. 29.* Common Fumitory. Native. A. V-IX.

Cultivated ground and borders of fields. Common.

Authority for the Capreolate Fumitories, H. W. Pugsley, B.A., in *Journ. Bot.*, vol. xl, p. 129, *et seq.*

CRUCIFERÆ.

Cheiranthus (*L.*).

C. Cheiri (*L.*). Wallflower. Denizen. P. IV-VI.

On walls. Rare, and always escaped from gardens.

C. On old walls at Gayton (D.). Old walls at Wallasey (F.M.W.). 1877, Rocks at Burton Point, stated to have been introduced (R.B.). On outhouses in Burton Village; Rocks at Hilbre (Dr. G.).

Nasturtium (*R. Br.*).

N. officinale (*R. Br.*). *Fig. 30.* Watercress. Native. B. VI, VII.

Ditches, &c. Common.



Fig. 27. *CORYDALIS CLAVICULATA*.

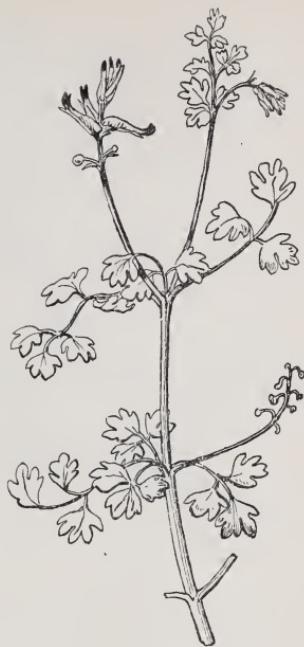


Fig. 28. *FUMARIA PALLIDIFLORA*.



Fig. 29. *FUMARIA OFFICINALIS*



Fig. 30. *NASTURTIUM OFFICINALE*.

B



Fig. 31. *NASTURTIUM PALUSTRE*.



Fig. 32. *NASTURTIUM AMPHIBIUM*



Fig. 33. *BARBAREA VULGARIS*.



Fig. 34. *ARABIS SAGITTATA*.

N. palustre (*D. C.*). *Fig. 31.* Marsh Yellow Cress. Native. P. VI-IX.

Wet places, or where water has stood. Frequent.

L. Near Aintree Village.

C. About Leasowe; Raby; Overpool.

N. amphibium (*R. Br.*). *Fig. 32.* Great or Amphibious Yellow Cress. Native. P. VI-VIII.

Watery places. Rare.

L. Formby and Southport (*D.*). (?) extinct.

C. Many ditches from Leasowe to West Kirby, extending inland to near Saughall Massie (*D.*; &c.).

***Barbarea* (*R. Br.*).** Yellow Rocket.

B. vulgaris (*R. Br.*). *Fig. 33.* Winter Cress or Yellow Rocket. Native. B. or P. V-VIII.

Damp places. Frequent.

C. Raby Mere; Newton cum Larton; Backford; Shotwick.

B. intermedia (*Borean*). Denizen. Cultivated fields. Very rare. B. V-VII.

L. 1862, Among Rye grass in a field at West Derby (*Flora Committee*).

C. 1866, in a field of turnips near Hooton (*F.M.W.*).

B. praecox (*R. Br.*). Early Winter Cress. Alien. B. V-VII.

Cultivated ground and roadsides. Occasional.

L. 1891, Borders of fields near Kirkby; Railway bank near Aintree, 1893 (*J.A.W.*).

C. Raby; Greasby; Ness (*Dr. G.*).

B. stricta (*Andre*). Native. B. V-VIII.

C. By the wooden bridge over the mill brook before entering the lane up to Stoke (*F.M.W.*; *w.w.n.*). Needs recent confirmation.

***Arabis* (*L.*).** Rock Cress.

A. sagittata (*D. C.*). *Fig. 34.* Hairy Rock Cress. Native. B. VI-VIII.

(*A. hirsuta*, *Syme*).

Sandhills. Occasional.

L. Formby.

C. 1883, in a narrow lane leading from near Meols Station towards Greasby (*R.B.*). Shotwick; Sandhills about Wallasey (*Dr. G.*).

Cardamine (*L.*). Bitter Cress.

- C. amara* (*L.*). *Fig. 35.* Bitter Cress or Ladies' Smock. Native. P. V, VI.

Moist places in woods. Rare.

L. West Derby (H.). In ditches at Melling (D.). Dean Wood, Upholland (Field Club). Weaver Valley (J.F.R.). Croxteth Park (R.B.). 1887, Simmonswood Brook, above the mill dam, near Kirkby (E.D.).

C. 1875, Ashton Brook, one and a half miles E. of Dunham on the Hill; Banks of Thornton Brook, one mile W. of Ince (R.B.).

- C. pratensis* (*L.*). *Fig. 36.* Cuckoo Flower or May Flower. Native. P. IV-VI.

Moist meadows and ditch sides. Very common.

- C. hirsuta* (*L.*). *Fig. 37.* Hairy-leaved Ladies' Smock. Native. A., B. or P. IV-VIII.

Walls, dry banks, &c. Very common.

- C. flexuosa* (*With.*). Zig-zag Ladies' Smock. Native. V.

By the sides of ponds and streams. Frequent.

C. Hooton; Backford; &c.

Alyssum (*L.*).

- A. maritimum* (*L.*). *Fig. 38.* Sweet Alyssum. Alien. A. or P. VI-VIII.

Sandy ground near the sea. Very rare.

L. Sandhills near Waterloo (D.), and is still to be found there, and about Crosby. In a sandy lane between Formby and Freshfield (R.D.B.); Southport (J. Hg.).

C. West Kirby; 1895, Hoylake; 1896, Wallasey (Dr. G.).

- A. incanum* (*L.*). Was found as a Casual, 1894, about the Birkenhead Docks (R.B.).

Erophila (*D.C.*). Whitlow Grass.

- E. vulgaris* (*D.C.*). *Fig. 39.* Whitlow Grass. Native. A. III-V. (*Draba verna*, *L.*).

Banks, rocks, walls, sandhills, &c. Frequent.

L. 1887, Road between Jericho Lane and Otterspool Station, probably introduced with ships' ballast (R.B.).

C. Netherton (J.F.R.). On an old wall at Tranmere; about and on walls at Wallasey and Prenton (H.S.F.). 1878, Rocky ground in Caldy village (R.B.).

NOTE—Many additional localities might be cited. More frequent in Cheshire than S. Lancashire.

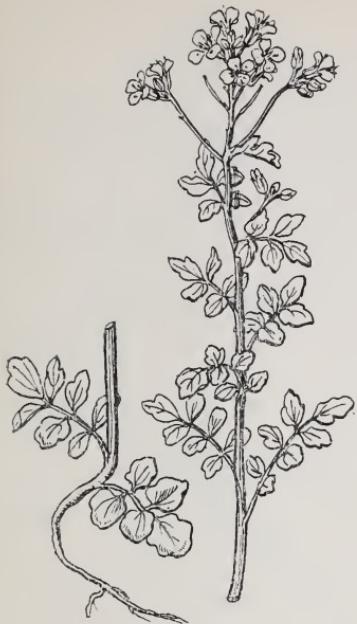


Fig. 35. CARDAMINE AMARA.



Fig. 36. CARDAMINE PRATENSIS.



Fig. 37. CARDAMINE HIRSUTA.



Fig. 38. ALYSSUM MARITIMUM.



Fig. 39. *EROPHILA VULGARIS*.



Fig. 40. *COCHLEARIA ANGLICA*.



Fig. 41. *COCHLEARIA DANICA*.

***Cochlearia* (L.). Scurvy Grass.**

C. Armoracia (L.). Horse radish. Alien. P. V.

Waste ground, as an escape from cultivation. Occasional.

C. Near Warren Station Wallasey; near Prenton, &c. (Dr. G.).

C. anglica (L.). *Fig. 40.* Long-leaved Scurvy Grass. Native. B. or P. V-VIII.

Muddy places near the sea. Frequent.

b. hortii (Syme).

L. 1892, Southport (J.A.W.).

C. danica (L.). *Fig. 41.* Triangular-leaved Scurvy Grass. Native. A. or B. IV-VIII.

On the sea coast. Rare and local.

L. 1891, at the foot of walls at Walton Gaol (J.A.W.).

C. About Parkgate (H.). Hilbre (D.). 1875, Bank of R. Dee below Heswall; 1878, in lane leading from Caldy to the shore; Rocks at Burton Point (R.B.).

***Hesperis* (L.)**

H. matronalis (L.). *Fig. 42.* Dames Violet or Rocket. Alien. B. or P. V, VI.

Plantations, fields, &c. Rare, and escaped from cultivation.

L. About Clegg's ponds, Allerton (D.). Mossley Hill (Mrs. S. B.). Speke (Miss R.). 1892, about Aintree Racecourse (J.A.W.).

C. In several moist plantations in Wirral (H.E.S.). In two places near Raby Mere; near Stoke (Dr. G.). 1901, by the Birket at Leasowe (Miss W.).

***Sisymbrium* (L.).**

S. Thalianum (Hook.). *Fig. 43.* Thale Cress. Native. A. IV, V and IX, X.

Walls, dry banks, &c. Common.

S. officinale (Scop.). Hedge Mustard. Native. A. or B. VI, VII. Roadsides and waste places. Very common.

b. liocarpum (D.C.).

L. 1892, Lane behind Walton Village, leading to Club Moor (J.A.W.).

C. Frequent on the Cheshire side (J.A.W.).

- S. Sophia (L.).** *Fig. 44.* Flixweed. Native. A. VI-VIII.
 Sandy banks and fields near the sea. Frequent.
 L. Kirkby (W. H. Holt; Miss W.). Near Ormskirk (T.W.). Crosby ;
 Formby.
 C. Near Bidston Church (H.). Luxuriant about Meols (Dr. G.).
- S. Alliaria (Scop.).** *Fig. 45.* Jack-by-the-Hedge, Garlic-mustard.
 Native. B. V, VI.
 About hedges and the borders of woods. Common.
 L. Speke ; &c.
 C. Meols ; Bromborough ; Shotwick ; &c.
- S. pannonicum (Jacquin).** *Fig. 46.* Alien. VI.
 L. Plentiful about Crosby (H.S.F.). 1894, in a lane near
 Walton Village (J.A.W.).
- Erysimum* (L.).** Treacle Mustard.
- E. cheiranthoides (L.).** *Fig. 47.* Treacle Hedge Mustard. Native.
 A. VI-VIII.
 Cultivated ground, roadsides, railway banks. Occasional.
 L. Barton to Altcar. Black Bull Lane, Walton (J.A.W.).
 C. Wallasey, chiefly about the railway ; 1901, one mile north
 of Great Saughall (Dr. G.).
- NOTE.—More frequent in Lancashire than Cheshire.
- E. orientale (Br.).** Hare's Ear Cabbage. Casual.
 L. 1892, In an oat field, Walton (J.A.W.).
 C. 1883-84, Hoylake, about the railway siding (R.B.).
 (?) Extinct. Occasionally found about Birkenhead Docks.
- E. repandum (L.).**
 As a casual, 1892, at Birkenhead (J.A.W.).
- Camelina* (Crantz).**
- C. sativa (Crantz).** *Fig. 48.* Gold of Pleasure. Casual.
 L. 1871, River bank at Dungeon ; and 1875, towards Oglet ;
 1876, corn field between Ditton Station and the Church (R.B.).
 C. 1895, Hoylake, near the station (Dr. G.).
- b. fætida (Fr.).**
 L. Has been found as a casual on Bath Farm, Ormskirk (T.W.). Canal banks, Aintree ; Seven Pits, near Walton (J.A.W.).
- Brassica* (L.).** Cabbage, Turnip, &c.
- B. Napus (L.).** Rape or Coleseed. Denizen. A. or B. V-VII.
 Cultivated ground. Occasional.

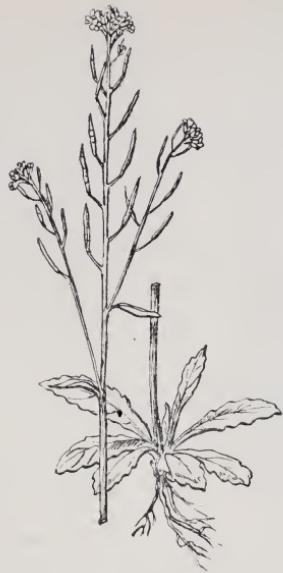


Fig. 42. *HESPERIS MATRONALIS*. Fig. 43. *SISYMBRIUM THALIANUM*. Fig. 44. *SISYMBRIUM SOPHIA*.



Fig. 45. *SISYMBRIUM ALLIARIA*.

Fig. 46. *SISYMBRIUM PANNONICUM*.



Fig. 47. *ERYSIMUM CHEIRANTHOIDES*.



Fig. 48. *CAMELINA SATIVA*.



Fig. 49. *BRASSICA MONENSIS*.



Fig. 50. *BRASSICA NIGRA*.

- B. Rapa** (*L.*). Turnip. Denizen.
Cultivated ground. Occasional.
C. Near Raby Mere (Dr. G.).
- B. monensis** (*Huds.*). *Fig. 49.* Isle of Man Cabbage. Native. P. VI-VIII.
Sandhills. Frequent.
- B. nigra** (*Koch*). *Fig. 50.* Black Mustard. Native. A. VI-VIII.
Sandy ground near the coast. Frequent. In cultivated land and the borders of fields. Occasional.
C. Wallasey to West Kirby, &c.
- B. Sinapis** (*Visiani*). *Fig. 51.* Charlock. Native. A. VI-VIII.
(*Sinapis arvensis*, *L.*).
In cornfields, &c. Very common.
- B. alba** (*Boiss*). *Fig. 52.* White Mustard. Casual. A. VII.
Cultivated ground. Very rare.
L. 1892, on rubbish, Aintree Racecourse (J.A.W.).
C. 1895, on a rubbish heap just W. of Eastham Ferry (Dr. G.).
- Diplotaxis* (*Cand.*). Wall-Mustard.
- D. tenuifolia** (*D. C.*). *Fig. 53.* Narrow-leaved Wall-Mustard.
(?) Native. P. VI-IX.
On old walls. Very rare.
C. On a low wall bordering a garden by the Parkgate shore (H.S.F.; F.M.W.).
- D. muralis** (*D. C.*). *Fig. 54.* Wall or Sand Mustard. Native.
A. VI-VIII.
Roadsides and sandy places. Rare.
L. Scattered about the sandhills near the railway between Waterloo and Freshfield.
C. Has been occasionally found about new made roads at Oxton and Claughton. 1879, about the Red Noses, New Brighton (Dr. G.).
- Capsella* (*Vent.*). Shepherd's Purse.
- C. Bursa-pastoris** (*Moench*). *Fig. 55.* Shepherd's Purse. Native.
A. III-V.
In waste and cultivated ground and by roadsides. Very common.
- Senebiera* (*Pers.*). Wart-Cress.
- S. didyma**, *Pers.* *Fig. 56.* Lesser Wart-Cress. Native. A. VI-VIII.
Sandy banks and waste ground. Rare.

C. As a ballast plant on the banks of Wallasey Pool (T.G.). About Birkenhead Docks (H.S.F.; T.G.). 1883, Great Meols, extending at intervals towards Hoylake and Leasowe (R.B.); there in 1900. About Wallasey (Dr. G.).

S. *Coronopus* (*Poir.*). *Fig. 57.* Wart Cress. Native. A. VI-IX. Waste ground, roadsides, &c. Frequent.
C. Parkgate; Queensferry; Backford (Dr. G.).

Lepidium (*L.*). Pepperwort.

L. *latifolium* (*L.*). *Fig. 58.* Broad-leaved Pepperwort. Dittander. Denizen. P. VII, VIII.

Waste ground. Very rare.

C. Plentiful on the hedge cop of L. side of road leading from Meols Station towards the village.

NOTE.—This is probably the remains of cultivation. 1902, This old station is now threatened by building operations.

L. *ruderale* (*L.*). *Fig. 59.* Narrow-leaved Pepperwort. Native. A. V, VI.

Banks. Very rare.

L. 1901, Formby (R.C.). About Aintree and Walton (J.A.W.).

C. Queensferry, close to the Ferry House, in the interstices between the stone blocks forming the river bank (D.). As a ballast plant at Birkenhead; new made roads at Claughton (H.S.F.).

L. *sativum* (*L.*). Garden Cress. Alien. A. VI, VII.

Rubbish heaps, &c. Occasional. Always of garden origin.

L. About Aintree and Walton (J.A.W.).

C. 1895, Hoylake Station siding (Dr. G.).

L. *campestre* (*R.Br.*). *Fig. 60.* Mithridate Pepperwort. Native. B. VI-VIII.

Cultivated fields, waste places, &c. Frequent.

L. Hale.

C. Ince to Helsby (Flora Committee, 1893). About Oxton; Moreton; West Kirby; Eastham; Ness; &c. (Dr. G.).

L. *Smithii* (*Hook.*). *Fig. 61.* Smooth Field Pepperwort. Native. P. VI-VIII.

Borders of fields, &c. Occasional in Cheshire. Rare in Lancashire.

L. Southport (D.). Score Lane, between Childwall Church and Broad Green; Field by the railway, near Red Brow, Kirkby (F.M.W.).

C. Hedges at Eastham and Rock Ferry (D.). Field between



Fig. 51. *BRASSICA SINAPIS.*

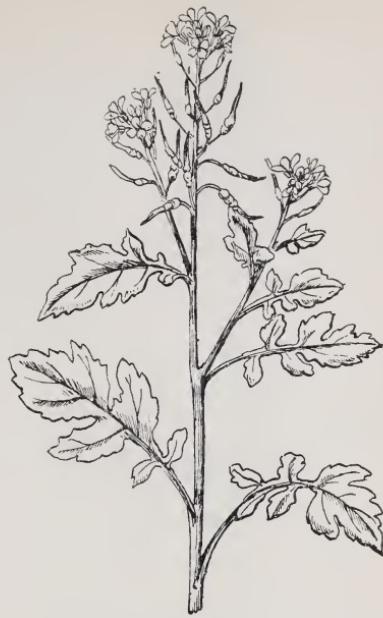


Fig. 52. *BRASSICA ALBA.*

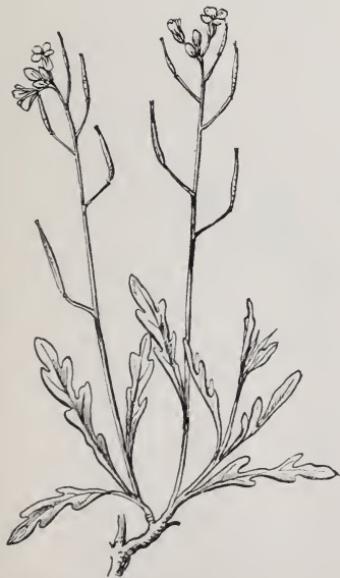


Fig. 53. *DIPILOTAXIS TENUIFOLIA.*



Fig. 54. *DIPILOTAXIS MURALIS.*



Fig. 55. CAPSELLA BURSA-PASTORIS.



Fig. 56. SENEBIERA DIDYMA

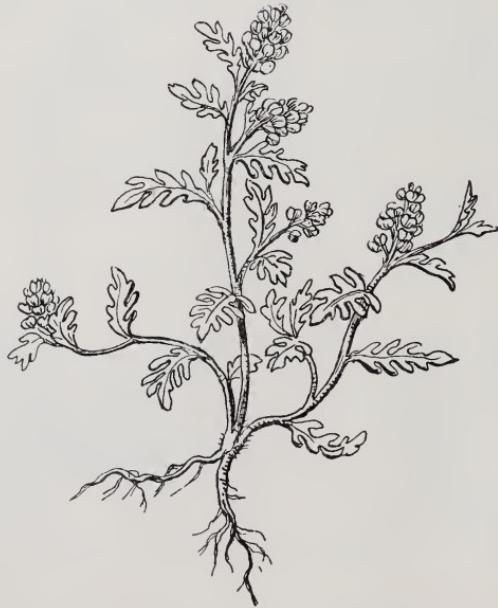


Fig. 57. SENEBIERA CORONOPUS.

Higher Tranmere and Bebington; By Noctorum Farm (F.M.W.). West Kirby (Miss C. G.). Saughall Massie (J.H.L.). Lane to Hadden Farm from Chester Road, about one-third mile S. of Ness (F.M.W.). 1875, Roadside between L. Storeton and the top of the hill (R.B.). Near Burton; Neston; Backford (Dr. G.).

- L. *Draba* (*L.*). *Fig. 62.* Whitlow Pepperwort. Colonist. P. VI, VII. Fields and waste places. Very rare.

L. 1891, Canal banks Aintree (J.A.W.).

C. 1883, Several places on the banks of R. Dee at West Kirby (R.B.; A.K.B.).

F. Banks of R. Dee at Queensferry (D.). In a field near Queensferry (J.S.).

- L. *perfoliatum*. *Fig. 63.* 1901, as a casual at Formby (R.C.).

Thlaspi (*L.*). Penny Cress.

- T. *arvense* (*L.*). *Fig. 64.* Field Penny Cress. Native. A. V-VII. Cultivated fields. Rare.

L. Kirkby, near the new Inn (H.). Near the Old Hut at Hale; Hale Bank, and potato fields near Green Bank (D.). Allerton; About Woolton in potato fields (J.S.). Field near Blogue Gate Moss, Lathom (T.W.). 1883, Cultivated field at Formby. 1895, Cultivated field at Hunts Cross (Dr. G.).

C. Near Backford (Miss W.). 1895, near Leasowe Lighthouse (R.B.).

Teesdalia (*R. Br.*).
Shepherds' Cress.

- T. *nudicaulis* (*R. Br.*). *Fig. 65.* Shepherds' Cress. Native. A. V, VI.

Sandy and gravelly places. Rare in Lancashire; occasional in Cheshire.

L. Near Moss End, Formby (F.M.W.). Southport (J.G.). Lane between L. Crosby and Hightown; near Freshfield Station; Old Moss Lane, near Haskayne; between Scarth Hill and Bickerstaffe (R.B.).

C. Grange Hill, West Kirby (Flora Committee, 1893). Roadside at Pensby; Storeton Hill; Ness Holt (Dr. G.). Near Burton (Miss W.).

Cakile (*Gaert.*). Sea Rocket.

- C. *maritima* (*Scop.*). *Fig. 66.* Purple Sea Rocket. Native. A. VI, VII.

Scattered along sandy sea shores. Local.

C. At intervals along the coast from Wallasey to West Kirby.

Raphanus (L.). Radish.

- R. Raphanistrum** (L.). *Fig. 67.* Wild Radish. Denizen. A. VI, VII.
In cornfields and other cultivated ground. Occasional.
C. At intervals from Wallasey to Leasowe; railway bank,
W. of Great Saughall (Dr. G.).

RESEDACEÆ.

Reseda (L.). Mignonette.

- R. alba** (L.). *Fig. 68.* White Mignonette. Colonist. B. or P. VII,
VIII.

Waste sandy places near the sea. Rare.

L. 1856, Outskirts of Southport at south end (T.W.).

C. Beyond New Brighton (D.). 1897, near Warren Station,
among garden rubbish (Miss W.).

- R. luteola** (L.). *Fig. 69.* Weld. Dyers' Weed. Native. B. VI-VIII.
Sandy ground near the sea. Common. Rare inland.
C. Railway banks and sandy ground from Wallasey to Hoylake;
about Burton Point.

- R. lutea** (L.). *Fig. 70.* Wild Mignonette. Colonist. B. VI-VIII.
Waste places. Rare.
L. 1885, Embankment of railway between Aintree and Sefton (R.B.), and continues to the present time.
C. 1883-4, about the coal siding by Hoylake Station (R.B.).

VIOLARIEÆ.

Viola (L.). Violet.

- V. palustris** (L.). *Fig. 71.* Marsh Violet. Native. P. IV-VI.
Marshy places. Occasional.

L. Bickerstaffe Moss, near the Level Crossings Station (D.).
Knowsley Woods (F.M.W.). 1888, damp meadows by River Alt,
below Lydiate (R.B.).

C. Snidley Moor, Frodsham (J.F.R.). Raby (Rev. H.). Meadow
by stream below Raby Mere (Dr. G.)

- V. odorata** (L.). *Fig. 72.* Sweet Violet. Native or Denizen.
P. III, IV.

Hedge banks, &c. Occasional; often introduced.

L. Speke, blue and white (H.). In a wood opposite Roby Hall;
near West Derby; Wavertree Road, near the Quarry;
New Park, near Ormskirk, white (D.). Fazakerley (H.S.F.).
1864, Allerton, blue (T.G.). Edge of Croxteth Woods, near the
footpath to Knowsley (F.M.W.).



Fig. 58. *LEPIDIUM LATIFOLIUM*.



Fig. 59. *LEPIDIUM RUDERALE*.



Fig. 60. *LEPIDIUM CAMPESTRE*.



Fig. 61. *LEPIDIUM SMITHII*.



Fig. 62. *LEPIDIUM DRABA.*



Fig. 63. *LEPIDIUM PERFOLIATUM.*



Fig. 64. *THLASPI ARVENSE.*



Fig. 65. *TEESDALIA NUDICAULIS.*

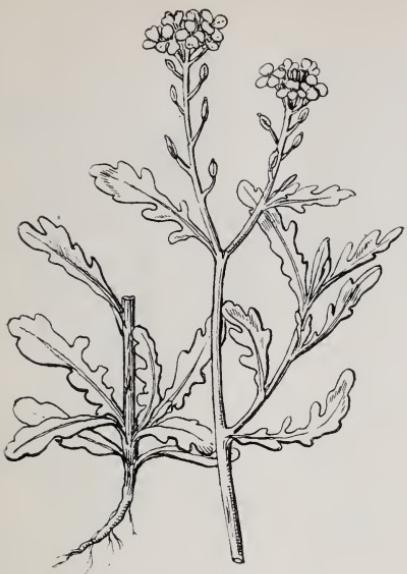


Fig. 66. CAKILE MARITIMA.



Fig. 67. RAPHANUS RAPHANISTRUM.



Fig. 68. RESEDA ALBA.



Fig. 69. RESEDA LUTEOLA.



Fig. 70. *RESEDA LUTEA*.



Fig. 71. *VIOLA PALUSTRIS*.



Fig. 72. *VIOLA ODORATA*.

C. Several places near Frodsham, blue and white (J.F.R.). Raby Wood, near the Mill (W.H.H.). Near Upton, on the road to Moreton, blue (Miss C.). Near Great Meols and Thurstaston, white (H.E.S.). In a copse above the river bank at Dawpool, blue (Miss W.). 1875, Hedge bank between Backford and Lea Hall; at Backwood, near Gayton; naturalised on hedge banks just before entering Shotwick from the Queensferry Road, blue (R.B.). Roadside just east of Mollington Station, blue; by roadsides in several places about Great Saughall (Dr. G.). F. *c. permixta* (Jord.) on the Sealands, between the Church and Blacon Point (R.B.).

V. sylvatica (Fries.). Wood Violet. Native. P. IV, V.

Woods and hedgebanks. Very common.

V. canina (L.). *Fig. 73.* Dilleni's Dog Violet. Native. P. IV-VI.

Sandhills, frequent. Inland, very rare.

L. Sandhills from Crosby to Southport; Old Moss Lane, about one mile west of Haskayne, nearly five miles inland (R.B.).

C. Sandhills, New Brighton to West Kirby.

V. tricolor (L.) Heartsease, Pansy. Native. A. VI-VIII.

Cultivated ground, &c. Occasional.

L. The Mosses.

C. Bebington; Near Whitby Heath (Dr. G.).

var *Lloydii* (Jord.).

L. 1894, Fields near Kirkby (J.A.W.).

var. contempta (Lloyd).

L. Near Linacre (J.A.W.).

V. carpatica (Borbas). *Fig. 74.* Carpathian Pansy. Native.

P.? VI-VIII.

Waste Land about The Mosses. Local.

L. 1901, Simmonswood Moss; Rainford; Railbanks beyond Kirkby (J.A.W.).

NOTE.—This species takes its name from the Carpathian Alps, where it is not uncommon. Our plant was named by Prof. Borbas, of Buda Pest, from a specimen found by Mr. Wheldon. It has probably often been seen by members of the L.N.F.C. about the Lancashire Mosses, but mistaken for a form of *V. tricolor*, to which group it belongs. For a description of it, see *Journ. Bot.*, vol. 39, p. 10.

V. arvensis (Murr.). *Fig. 75.* Small Flowered Field Pansy.

Native. VI-IX.

Cultivated ground, roadsides, &c. Very common.

V. Curtissii (*Forster*). *Fig. 76.* Sea Pansy. Native. P. VI-VIII.
Sandhills. Rare.

L. Formby (*J.H.L.*). Waterloo; Crosby; Southport, yellow
(*H.S.F.*)

C. Sandhills near New Brighton (*D.*). Not seen recently.

Authorities.—W. H. Beeby, for *Viola* proper. E. G. Baker, for *V. tricolor*
and its segregates.

POLYGALEÆ.

***Polygala* (*L.*).** Milkwort.

P. vulgaris (*L.*). *Fig. 77.* Milkwort. Native. P. VI-VIII.

Pastures, &c. Occasional.

C. Heswall.

P. oxyptera (*Reich.*) Small Flowered Milkwort. Native. P. VI-VIII.
Sandhills. Occasional.

L. Crosby (*D.*). Waterloo (*H.S.F.*). Formby and Hightown
(*J.H.L.*).

C. Wallasey (*J.H.L.*). New Brighton; Hoylake (*F.M.W.*).
1875, Banks of a pond between Willaston and Hargreave Hall
(*R.B.*). Thurstan Heath (*Dr. G.*).

P. serpyllacea (*Weih.*). Lesser Milkwort. Native. P. VI-VIII.

Heathy ground, both dry and damp. Common.

C. Bidston; Meols; Thurstan; Heswall.

CARYOPHYLLEÆ.

***Dianthus* (*L.*).** Pink.

D. Armeria (*L.*). Deptford Pink. Denizen. A. VII, VIII.

Cultivated ground. Very rare.

L. Fields near Gill Moss Chapel (*D.*).

C. In a cornfield at Little Sutton (*H.*).

Note.—Not seen recently, probably extinct.

D. deltoides (*L.*). *Fig. 78.* Maiden Pink. Native. P. VI-IX.

Dry pastures and hedges. Very Rare.

L. Hale Point (*D.*).

C. Near Wallasey Church and the Pool (*D.*). In hedges
between Liscard and New Brighton (*H.E.S.*). In two fields at
some distance from each other beyond the church at West
Kirby (*Mrs. S. B.*); 1900, reported from this old station to W.
Whitwell, F.L.S.



Fig. 73. *VIOLA CANINA*.



Fig. 74. *VIOLA CARPATICA*.



Fig. 75. *VIOLA ARVENSIS*.



Fig. 76. *VIOLA CURTISII*.



Fig. 77. *POLYGALA VULGARIS.*



Fig. 78. *DIANTHUS DELTOIDES.*



Fig. 79. *SAPONARIA OFFICINALIS.*

Saponaria (L.). Soapwort.

S. officinalis (L.). Fig. 79. Soapwort. Denizen. P. VIII.

Banks, &c., generally near dwellings. Occasional.

L. About Crosby, Formby, and Southport (D.) Railway banks near Hightown Station (H.S.F.; F.M.W.).

C. Bidston (H.). About Hoylake (D.). Meols; Heswall (Mrs. S. B.; Miss C. G.). Wall at Prenton Hall (H.S.F.; F.P.M.); there in 1901. Hedgebank in Lingdale Lane, Claughton (F.M.W.); destroyed in 1900. Near the Hill Houses, West Kirby (F.M.W.). Leasowe (Dr. G.). Wayside near Frodsham (J.F.R.).

b. puberula (Syme). Pubescent Soapwort.

L. 1873, a little inland of Hightown Station; Hedgebank at Ainsdale; Hedgebank between Ince Blundell Park and Thornton, with partially double flowers (R.B.).

C. 1875, roadside between Greasby and Irby Mill Hill; between Barnston and Gayton Windmill; 1883, sandy cops on S. side of Great Meols (R.B.); there in 1893.

NOTE.—“A curious variety, or rather monstrosity (*S. hybrida*, L.), has been found in Northamptonshire, and on the sandhills to the North of Liverpool, which has some of the upper leaves connate, and the corolla monopetalous.”—Mr. Syme, in *English Botany*, 3rd edition.

S. Vaccaria (L.). Casual.

L. 1863, in a cornfield at Crosby; in a field of barley at Seaforth in 1864 (T.G.). 1891, canal banks, Aintree (J.A.W.).

C. About new roads at Claughton (Mrs. F.B.; H.S.F.). 1899, Birkenhead Docks (W. H. Holt).

Silene (L.). Catchfly.

S. Cucubalus (Wibel). *Fig. 80.* Bladder Campion. Native. P. VI-VIII.

(*S. inflata*, Smith).

Fields and roadsides. Fairly frequent.

C. Bidston; Hoylake; Thornton Hough; Willaston; Burton, &c. (Dr. G.).

b. puberula (Syme).

Rare.

L. Hale Point (H.S.F.). Hall's Lane, near the Mossponds, Aintree (F.M.W.). Hedge bank between Ince Station and Elton (R.B.).

C. Among furze near Clatterbridge (D.). Three or four places between Willaston and Neston (F.M.W.). Roadside at Ness, and about Parkgate (R.B.). Overton (J.F.R.).

S. maritima (*With.*). *Fig. 81.* Sea Bladder Campion. Native. P. VI, VII.

By the sea. Local.

L. 1892, Southport (c.b.).

C. Hilbre (H.). Banks of R. Dee between Heswall and Parkgate (D.). Burton Point (H.S.F.).

S. gallica (*L.*).

a. anglica (*L.*). *Fig. 82.* English Catchfly. Native. A. VI-IX.

Sandy cultivated ground. Rare.

L. Southport; By the railway at Ainsdale; Crosby sand-hills (D.).

C. Heswall Hills; In a narrow lane leading from Bidston to the shore, and among the sandhills (H.). 1860, In a field by the railway between Hoylake and West Kirby (D.); there in 1896 (Dr. G.). 1861, Fields at Meols (H.E.S.). In a cornfield behind Leasowe Lighthouse (Miss W.).

S. nutans (*L.*). Nottingham Catchfly. Colonist. P. VI, VII.

C. 1898, Lane leading from Grove Road, Wallasey, to New Brighton golf links (Dr. G.).

S. noctiflora (*L.*). Night flowering Catchfly. Colonist. A. VII, VIII.

L. 1892, Seven pits, Walton (J.A.W.). Shore N. of Southport (R. Buxton). Crosby (Mrs. T. G., Jun.). 1890, Freshfield.

S. dichotoma (*Ehrh.*)

L. 1891, as a Casual, Canal banks, Aintree; 1893, Seven pits, Walton (J.A.W.).

Lychnis (*L.*). Campion.

L. alba (*Mill.*). *Fig. 83.* White Campion. Native. B. or P. VI-IX.

(*L. vespertina*, *Sibth.*).

Cultivated and sandy ground. Common.

L. diurna (*Sibth.*). Red Campion. Native. P. IV-XI.

Hedge banks and plantations. Very common.

L. Flos-cuculi (*L.*). *Fig. 84.* Ragged Robin. Native. P. V. VI.

In damp meadows, ditches, etc. Common.

L. Githago (*L.*). *Fig. 85.* Purple Corncockle. Colonist. A. VI-VIII.

In cornfields. Occasional.

C. 1896, Near Heswall (Dr. G.).



Fig. 80. *SILENE CUCUBALUS*.



Fig. 81. *SILENE MARITIMA*.



Fig. 82. *SILENA ANGLICA*.



Fig. 83. *LYCHNIS ALBA*.



Fig. 84. LYCHNIS FLOS-CUCULI.



Fig. 85. LYCHNIS GITHAGO.



Fig. 86. CERASTIUM SEMIDECANDRUM.



Fig. 87. CERASTIUM GLOMERATUM.

Cerastium (*L.*). Mouse-ear Chickweed.

C. quaternellum (*Fenzl.*). Upright Moenchia. Native. A. V, VI.
(*Moenchia erecta*, *Sm.*).

Gravelly or rocky ground. Rare.

L. 1873, In a grassy lane leading towards the sandhills, about half a mile S. of Hightown Station (R.B.).

C. In many places between New Ferry, The Rock, and Leasowe (H.). Several places round Bidston (D.) Sandy Lane, near Lower Bebington, on the road to Parkgate (J.S.). Roadside on Grange Hill, at the junction of the roads leading to West Kirby and the Hill Houses (Field Club).

C. tetrandrum (*Curt.*). Dark Green Mouse-ear Chickweed. Native.
A. V-VII.

On the sandhills.

NOTE.—Not recorded recently. Possibly an error,

C. semidecandrum (*L.*). *Fig. 88.* Little Mouse-ear Chickweed. Native. A. IV-VI.

The sandhills, dry banks, walls, &c. Common.

C. glomeratum (*Thuill.*). *Fig. 87.* Broad-leaved Mouse-ear Chickweed. Native. A. IV-IX.

In dry places. Common.

C. triviale (*Link.*). Narrow-leaved Mouse-ear Chickweed. Native.
B. or P. IV-IX.

Roadsides and cultivated ground. Very common.

NOTE.—On the sandhills it occurs with very viscid stems and long divaricate branches.

C. arvense (*L.*). *Fig. 88.* Large Flowered Chickweed. Native.
P. V-VIII.

In dry places. Local.

L. Southport (J.G.).

C. Hilbre (T.D.W.). Claybank of River Dee, between West Kirby and Caldy (F.M.W.). 1862, in a field between Thurstan-ton and Caldy (Mrs. S. B.). Summit of Overton Hills (J.F.R.)

Stellaria (*L.*). Stitchwort.

S. aquatica (*Scop.*). *Fig. 89.* Water Chickweed. Native. P. VII,
VIII.

By the borders of ditches. Very rare.

L. Ditches near Scarisbrick (D.).

NOTE.—This species does not extend further north on the west side of Britain.

C. Near Stoke (J.S.). Two patches between Thornton-in-the Moors and the River Gowey, towards Stoke (F.M.W.; W.W.N.). Ditch in the lane leading from the north end of Salters Lane towards Caughall (R.B.).

S. nemorum (*L.*). *Fig. 90.* Wood Stitchwort or Chickweed. Native. P. V, VI.

In damp woods. Very rare.

L. 1883, Wood at Halsnead (Dr. W.).

S. media (*Cyr.*). Common Chickweed. Native. A. III-IX.

Cultivated and waste ground, &c. Very common.

b. Boreana (*Jord.*).

Sandy ground near the sea. Frequent (F.M.W.).

c. neglecta (*Weih.*).

C. Netherton, near Frodsham (J.F.R.). Valley of the River Weaver, near Collen Hall, two miles from Overton (R.B.).

S. umbrosa (*Opitz.*). Native. P. III-IX.

Very rare.

L. 1888, Dean Wood, Upholland (R.B.).

S. Holostea (*L.*). *Fig. 91.* Greater Stitchwort. Native. P. IV-VI.

Thickets, hedgebanks, &c. Common.

S. palustris (*Ehrh.*). Glaucous Marsh Stitchwort. Native. P. V-VII.

Marshy places. Local.

L. 1831, 1841, 1866, in a tract of land near Scarisbrick and Martin Mere.

S. graminea (*L.*). *Fig. 92.* Lesser Stitchwort. Native. P. VI-VIII.

Bushy places, fields, &c. Common.

S. uliginosa (*Murr.*). Bog Stitchwort. Native. A. V-VII.

In watery places. Very common.

Arenaria (*L.*). Sandwort.

A. verna (*L.*). *Fig. 93.* Vernal Sandwort. Native. P. V-IX.

Rocky places in Flintshire. Local.

F. 1898, about the old lead mines near Afon Goch, inland of Ffynnon Groew (R.B.).



Fig. 88. *CERASTIUM ARVENSE.*



Fig. 89. *STELLARIA AQUATICA.*



Fig. 90. *STELLARIA NEMORUM.*



Fig. 91. *STELLARIA HOLOSTEA.*



Fig. 92. *STELLARIA GRAMINEA*.



Fig. 93. *ARENARIA VERA*.



Fig. 94. *ARENARIA TRINERVIA*.



Fig. 95. *ARENARIA PEPLOIDES*.



Fig. 96. *SAGINA MARITIMA*.

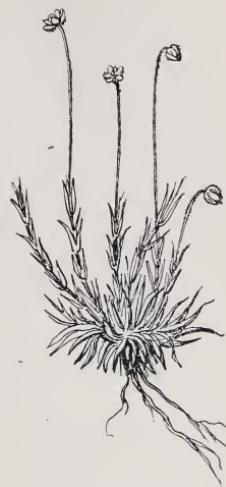


Fig. 97. *SAGINA SUBULATA*.



Fig. 98. *SAGINA NODOSA*.

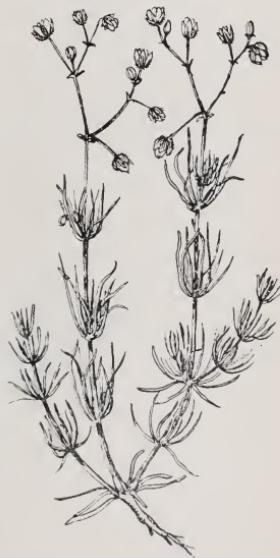


Fig. 99. *SPERGULA ARVENIS*.



Fig. 100. *LEPIGONUM RUBRUM.*



Fig. 101. *LEPIGONUM RUPESTRE.*

A. trinervia (*L.*). *Fig. 94.* Three-veined Sandwort. Native. A. V, VI.

In woods, &c. Common.

C. Near Bidston, Raby Mere, Shotwick, Backford Cross, &c.

A. serpyllifolia (*L.*). Thyme-leaved Sandwort. Native. A. VI-VIII.

Sandhills, walls, &c. Common.

b. glutinosa (*Koch*).

Is found in the district occasionally.

c. leptoclados (*Guss.*).

Sandhills, &c. Rare.

L. Formby near the old church (Field Club). Southport (H.S.F.).

C. Burton (Miss C.G.). Alvanley (J.F.R.).

A. peploides (*L.*). *Fig. 95.* Sea Purslane. Native. P. VI-IX.

(*Honkenia peploides*, *Ehrh.*).

Sandy seashores. Frequent.

C. Wallasey; Parkgate to Hoylake; Bromborough shore.

Sagina (*L.*). Pearlwort.

S. maritima (*Don.*). *Fig. 96.* Sea Pearlwort. Native. A. VI-VIII.

Damp places near the sea. Occasional.

b. debilis (*Jord.*).

Rocky banks of the lane between Bromborough and Patrick Wood (R.B.). Caldy Shore (Dr. G.).

S. apetala (*L.*). Upright Pearlwort. Native. A. V-IX.

Walls and dry places. Frequent.

S. ciliata (*Fries.*). Ciliate Pearlwort. Native. A. V, VI.

Walls, &c. Occasional.

L. Walls in Prince Alfred Road, Wavertree, and Aigburth Hall Road—now gone? (R.B.). Among the sandhills at Freshfield (J.W.B.).

C. In two places near Caldy; Burton Rocks (F.M.W.). Hilbre; Wall of a farm at Puddington (Lord de T.).

S. procumbens (*L.*). Prostrate Pearlwort. Native. P. V-IX.

Waste places, walls, &c. Very common.

S. subulata (*Presl.*). *Fig. 97.* Awl-leaved Pearlwort. Native. P. VI-VIII

Heathy, hilly ground. Rare in the Cheshire, and not found in the Lancashire part of the district.

C. Heswall Hills; Frankby Heath; Lower Bebington in a sandy lane on the way to Parkgate (D.) Thurstanston (Miss C. G.).

S. nodosa (*E. Meyer*). *Fig. 98.* Knotted Pearlwort. Native. P. VII, VIII.

Damp sandy places. Frequent near the coast. Occasional inland.

L. Near Barton (R.B.).

C. Wallasey (Dr. G.).

***Spergula* (L.). Spurrey.**

S. arvensis (*L.*). *Fig. 99.* Corn Spurrey. Native. A. VI-VIII.

a. *vulgaris* (*Boenn*).

Sandy ground near the coast. Common.

b. *sativa* (*Boenn*).

Cultivated ground. Very common.

***Lepigonum* (*Fries*). Sand Spurrey.**

L. rubrum (*Fries*). *Fig. 100.* Sandwort Spurrey. Native. A. or B. VI-IX.

Dry sandy places. Frequent.

L. Near Dungeon (R.B.).

C. Claughton Village; Oxton Heath; Storeton; Waterworks Road, West Kirby (R.B.). Burton; Irby Mill Hill; Eastham (Dr. G.).

L. salinum (*Fries*). Lesser Sea Spurrey. Native. A. or B. VI-IX.

Muddy places on the coast. Frequent.

b. *medium* (*Fr.*).

C. Ellesmere Port; Parkgate (Dr. G.).

c. *neglectum* (*Kindb.*).

L. marginatum (*Koch*). Greater Sea Spurrey. Native. B. or P. VI-IX.

Muddy places on the coast. Frequent.

L. Salt marsh at Dungeon (R.B.).

C. Between Parkgate and Denhall Colliery (Lord de T.; F.M.W.). Banks of Bromborough Pool; between Eastham Ferry and Ellesmere Port (F.M.W.; R.B.).

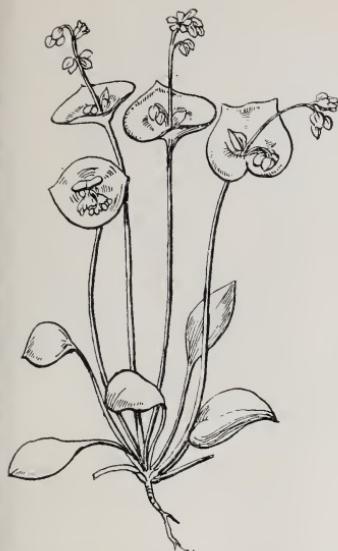


Fig. 102. CLAYTONIA PERFOLIATA.



Fig. 103. MONTIA FONTANA.

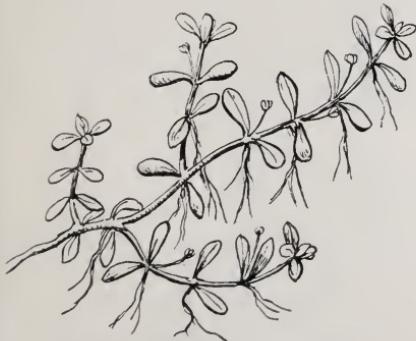


Fig. 104. ELATINE HEXANDRA.



Fig. 105. HYPERICUM ANDROSÆMUM.

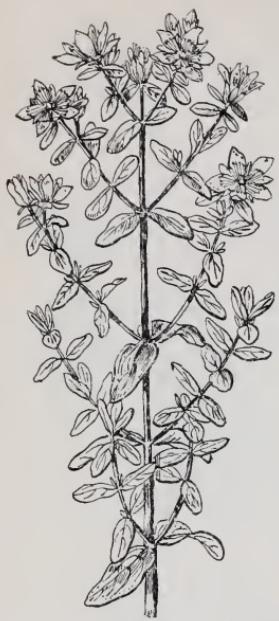


Fig. 106. *HYPERICUM PERFORATUM.*



Fig. 107. *HYPERICUM HUMIFUSUM.*



Fig. 108. *HYPERICUM PULCHRUM.*



Fig. 109. *HYPERICUM ELODES.*

L. rupestre (*Kindb.*). *Fig. 101.* Rock Sea Spurrey. Native.
P. VI-IX.

Rocks by the sea coast. Local.

C. Abundantly on the rocks at Hilbre (*F.M.W.*).

Authority on *Caryophylleæ*, F. N. Williams.

PORTULACEÆ.

***Claytonia* (L.).**

C. perfoliata (*Don.*). *Fig. 102.* Perfoliate Claytonia. Alien (N. American). A. IV-VI.

Sandy ground. Rare.

L. By the old church at Formby (*E.D.*).

C. 1886, roadside by the Leasowe Golf Links (*R.H.D.*); and lane leading thence to the Golf house (*Dr. G.*). Churchyard at Hoylake (*w.w.*).

***Montia* (L.). Blinks.**

M. fontana (*L.*). *Fig. 103.* Water Blinks. Native. A. or P. IV-VIII.

a. *minor* (*Gmel.*).

In wet places. Common.

b. *rivularis* (*Gmel.*).

In ditches. Occasional (*H.S.F.*).

C. Saughall Massie (*Dr. G.*).

ELATINEÆ.

***Elatine* (L.). Waterwort.**

E. hexandra (*D.C.*). *Fig. 104.* Six-stamened Waterwort. Native. A. VIII.

Growing under water. Very rare.

L. 1885-1893. Lake in Knowsley Park (*Dr. w.*).

HYPERICINEÆ.

***Hypericum* (L.). St. John's Wort.**

H. Androsaemum (*L.*). *Fig. 105.* Tutsan. Denizen. Shrub. VI-VIII.

Thickets, &c. Very rare. Probably planted.

C. Upon a bank of Bromborough Pool just beyond Patrick Wood (*D.*). 1901, Plantation in Hooton Park towards Overpool (*Dr. G.*).

H. hircinum (*L.*). Stinking St. John's Wort. Alien. Shrub. VI-VIII.

Woods. Very rare.

L. 1860, luxuriant among brambles, &c., in the old lane by Ince Blundell Park (G.K.).

H. perforatum (*L.*). *Fig. 106.* Dotted-leaved St. John's Wort. Native. P. VII, VIII.

Hedgebanks and bushy places. Frequent.

C. Bidston; Bromborough; Dawpool; &c.

H. quadratum (*Stokes*). Square-stemmed St. John's Wort. Native. P. VII, VIII.

In wet places. Frequent.

C. Parkgate; Raby Mere; Newton; &c.

H. quadrangulum. Imperforate St. John's Wort. Native. P. VII, VIII.

a. dubium (*Leers.*).

C. 1878, by the footpath from near the E. side of Mollington Station towards the canal (R.B.).

F. 1898, inland of Flint; Bagillt; Ffynnon Groew (R.B.).

b. maculatum (*Bab.*).

L. Lane leading from Ashurst Beacon towards Dalton Common (R.B.).

C. Moston (*Lord de T.*). Lane from the schools, West Kirby, to the Frankby Road (F.M.W.). Below Little Saughall (F.M.W.; W.W.N.).

H. humifusum (*L.*). *Fig. 107.* Trailing St. John's Wort. Native. P. VII, VIII.

Heathy and gravelly places. Frequent.

C. Birkenhead Park; Higher Bebington; Little Sutton; Heswall; West Kirby; &c.

H. pulchrum (*L.*). *Fig. 108.* Small Upright St. John's Wort. Native. P. VII, VIII.

Dry banks and heaths. Frequent.

C. Bidston; Woodchurch; Spital; along Deeside; &c.

H. hirsutum (*L.*). Hairy St. John's Wort. Colonist P. VII, VIII. Thickets. Very rare.

C. In a thicket at Aston near Frodsham (D.). No recent record.



Fig. 110. ALTHÆA OFFICINALIS.



Fig. 111. MALVA MOSCHATA.



Fig. 112. MALVA SYLVESTRIS.



Fig. 113. MALVA ROTUNDIFOLIA.



Fig. 114. *TILIA PLATYPHYLLOS*.



Fig. 115. *TILIA CORDATA*.

H. elodes (*L.*). *Fig. 109.* Marsh St. John's Wort. Native. P. VII, VIII.

Spongy bogs and ditches. Very rare.

L. Ditch in New Cut Lane, about one and a half miles W. of Halsall (R.B.).

C. Oxton Heath in two places (F.M.W.). Not seen up to 1901 (Dr. G.).

MALVACEÆ.

Althaea officinalis (*L.*). *Fig. 110.* The Marsh Mallow.

Used to grow at Southport in a place since built over.

Malva (*L.*). Mallow.

M. moschata (*L.*). *Fig. 111.* Musk Mallow. Colonist. P. VII, VIII. Fields and hedgebanks. Rare.

C. Little Sutton (H.). 1860, Raby (Dr. C.). Between Hooton and Eastham (F.P.M.; H.S.F.). 1876, Roadside one and a half miles from Burton towards the Chester Road; Lane between Overpool and Pool Hall (E.D.; R.B.). 1897, Field at Port Sunlight, since built over; 1901, Lane below Shotwick Church (Dr. G.).

NOTE.—These stations are not permanent.

M. sylvestris (*L.*). *Fig. 112.* Common Mallow. Native. P. VII-IX.

Roadsides and waste places. Common.

M. rotundifolia (*L.*). *Fig. 113.* Dwarf Mallow. Native. P. VII-IX.

Waste places, sandhills, etc. More frequent in Cheshire than Lancashire.

M. borealis (*Wallm.*).

As a Casual near Litherland; and by the canal banks, Aintree (J.A.W.).

TILIACEÆ.

Tilia (*L.*). Lime tree.

T. platyphyllos (*Scop.*). *Fig. 114.* Large-leaved Lime. Denizen. Tree VI, VII.

In woods and hedges. Rare, and always planted.

T. vulgaris (*Hayne*). Common Lime. Alien. Tree VI, VII.

In plantations, etc. Frequent, and always planted.

T. cordata (*Mill.*). *Fig. 115.* Small-leaved Lime. Denizen. Tree VI, VII.

Woods and hedges. Occasional, and always planted.

LINEÆ.

Radiola (*Gmel.*). Flaxseed.

- R. *linoides* (*Gmel.*). *Fig. 116.* Flaxseed. Allseed. Native. A. VII, VIII.

Damp, sandy, or peaty places, especially where liable to inundation during winter. Occasional.

L. Seaforth (H.). Simmonswood Moss (D.). Sandy field adjoining Headbolt Lane between Ainsdale and Formby Hall (R.B.).

C. Heath near Frodsham (J.F.R.). 1883, N. slope of Thurstaston Hill (R.B.); there in 1895 (Dr. G.).

Linum (*L.*). Flax.

- L. *catharticum* (*L.*). *Fig. 117.* Purging Flax. Native. A. VI, VII. Dry pastures and banks. Frequent.

- L. *angustifolium* (*Huds.*). *Fig. 118.* Narrow-leaved Flax. Colonist. P. VI-VIII.

Dry sandy ground and waysides.

Rare in Lancashire. Occasional in Cheshire.

C. Barnston (D.). Field near Clatterbridge (J.S.). New road near there, 1900 (Dr. G.). On the shore between Heswall and Caldy (H.S.F.; F.M.W.). Between New Chester Road and Bromborough Pool (J.W.B.). Roadside, one mile from Brimstage towards Gayton (R.B.). Gayton (Lord de T.). Leasowe sandhills (A.K.B.) 1891, Roadside at Bidston; 1896, Hooton; 1898, Wallasey (Dr. G.).

NOTE.—These stations are not permanent.

- L. *usitatissimum* (*L.*). Cultivated Flax. Casual. A. VII. Rubbish heaps, &c. Occasional, and not permanent.

GERANIACEÆ.

Geranium (*L.*). Crane's Bill.

- G. *sanguineum* (*L.*). *Fig. 119.* Bloody Crane's Bill. Colonist. P. VI-VIII.

Dry banks near the sea. Rare and local.

C. Sandy banks above the Red Noses, New Brighton (H.). Banks of the River Dee at intervals from West Kirby to Parkgate (Miss C.G.). Wallasey sandhills (Miss W.).

- G. *pratense* (*L.*). *Fig. 120.* Blue Meadow Crane's Bill. (?) Native. P. VI-VIII.

Moist pastures. Very rare.



Fig. 116. *RADIOLA LINOIDES*. Fig. 117. *LINUM CATHARTICUM*. Fig. 118. *LINUM ANGUSTIFOLIUM*.



Fig. 119. *GERANIUM SANGUINEUM*.

Fig. 120. *GERANIUM PRATENSE*.



Fig. 121. GERANIUM PYRENAICUM.



Fig. 122. GERANIUM DISSECTUM.



Fig. 123. GERANIUM COLUMBINUM.

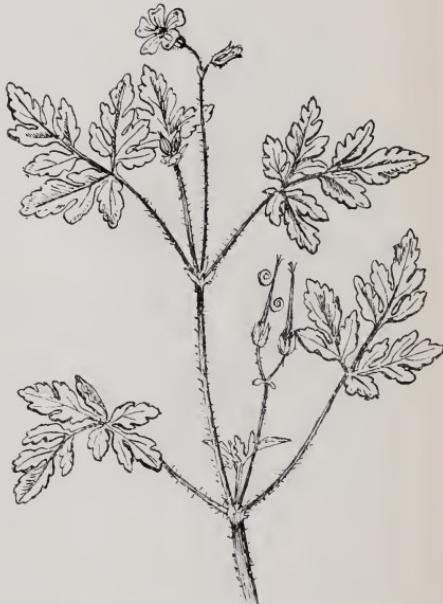


Fig. 124. GERANIUM ROBERTIANUM

L. River side near Warrington, below Atherton's Quay (J.P.).
Wood at the back of Ince Blundell Hall (R.B.).

C. Aston, near Frodsham (J.F.R.).

NOTE.—Possibly introduced.

G. pyrenaicum (*Burm.*). *Fig. 121.* Mountain Crane's Bill. Colonist.
P. VI–VIII.

Waysides, &c. Rare.

L. 1885, at intervals on the railway banks between Aintree and Sefton stations, and in an adjacent cornfield (R.B.).

C. Private road from Bumper's Lane, Sealands, to the Dee Cop (E.D.). 1901, Roadside at Denhall (A.K.B.).

G. molle (*L.*). Soft Crane's Bill. Native. A. VI–VIII.

Dry pastures, roadsides, &c. Very common.

G. pusillum (*Burm. f.*). Small-flowered Crane's Bill. Native. A. VI–VIII.

Waste places and roadsides. Rare.

L. 1884, one plant immediately inland of Hightown Station (E.D.).

C. (?) Caldy (Miss C. G.). A small green by the road at Gt. Meols (F.M.W.); there in 1893 (Dr. G.). (?) Waste land at New Brighton (J.F.R.; Miss C. G.). 1884, Capenhurst (Miss B.). Wimbolds Trafford; by Denhall House (*Flora Committee, 1893*).

G. dissectum (*L.*). *Fig. 122.* Jagged-leaved Crane's Bill. Native.
A. VI–VIII.

Cultivated fields, waste places, &c. Frequent.

C. Backford; Little Sutton; Burton; Leasowe; &c.

G. columbinum (*L.*). *Fig. 123.* Long-stalked Crane's Bill. Colonist.
A. VI–VIII.

Roadsides, waste places, etc. Rare.

L. Simmonswood Moss (D.).

C. Lane near Heswall (H.). Near Queensferry; Lane near Thornton; Roadside near Bidston (D.). Lane leading to Denhall House (Field Club); there in 1901. Probably extinct in all but the last named station.

G. Robertianum (*L.*). *Fig. 124.* Herb Robert. Native. A. V–IX.
Hedgebanks, etc. Very common.

NOTE.—Occasionally met with white flowers.

G. phaeum (*L.*). Dark Purple flowered Crane's Bill. Alien.
P. V, VI.

Woods. Very rare.

L. Ince Blundell Woods (Miss D.). Huyton (T.G.).

G. rotundifolium (*L.*). Round-leaved Crane's Bill.

Was once found, in 1872, on a newly made road at Claughton.

Erodium (*L'Hérit.*). Stork's Bill.

E. cicutarium (*L'Hérit.*). Stork's Bill. Native. A. VI-IX.

Sandy ground near the sea. Common.

Waste sandy places inland. Occasional.

E. moschatum (*L'Hérit.*). *Fig. 125.* Musk Stork's Bill. Native. A. VI, VII.

Banks and fields. Very rare.

L. Roadside at Aughton Brow, Ormskirk; Field near Lathom (D.). 1884, a single plant inland of Hightown Station (Dr. W.).

C. Hedgebank on N. side of Grange Hill, West Kirby (D.). Shore close to Denhall House (*Flora Committee*, 1893); there in 1901.

Oxalis (*L.*). Wood Sorrel.

O. Acetosella (*L.*). *Fig. 126.* Wood Sorrel. Native. P. IV-VI. In shady places. Common.

O. corniculata (*L.*). *Fig. 127.* 1880, as a Casual in gardens at West Derby (Dr. G.).

Impatiens (*L.*). Balsam.

I. parviflora (*DC.*). *Fig. 128.* Small-flowered Balsam. Alien. A. VII-IX.

Hedgebanks. Rare.

C. Oxton (H.S.F.). About Fairview Road, Oxton, 1899. (Dr. G.). 1899, Mount Wood, Prenton Hill (Miss H. H.).

NOTE.—This is a Russian plant, now quite naturalised in England.

ILICINEÆ.

Ilex (*L.*). Holly.

I. Aquifolium (*L.*). *Fig. 129.* Holly. Native. Tree IV, VII. In woods and hedges. Common.



Fig. 125. *ERODIUM MOSCHATUM.*



Fig. 126. *OXALIS ACETOSELLA.*

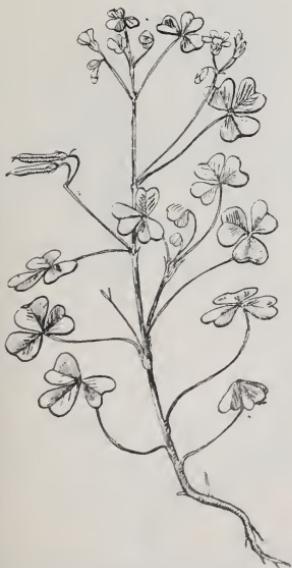


Fig. 127. *OXALIS CORNICULATA.*

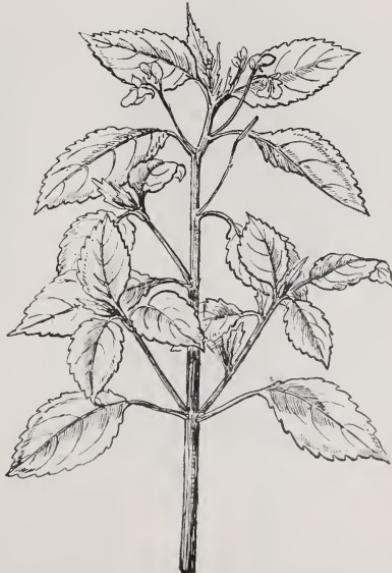


Fig. 128. *IMPATIENS PARVIFLORA*



Fig. 129. *ILEX AQUIFOLIUM*.



Fig. 130. *EUONYMUS EUROPÆUS*.



Fig. 131. *RHAMNUS CATHARTICUS*.



Fig. 132. *ACER PSEUDOPLATANUS*.

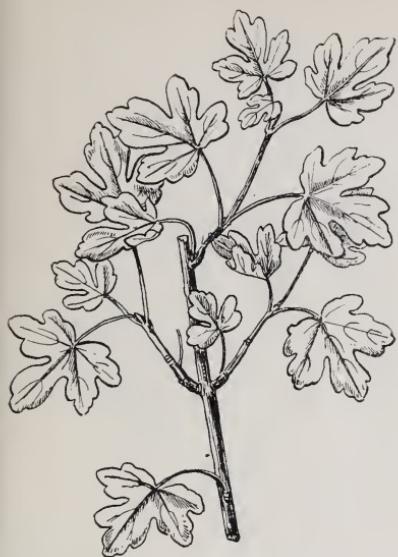


Fig. 133. *ACER CAMPESTRE.*



Fig. 134. *ÆSCULUS HIPPOCASTANUM.*



Fig. 135. *GENISTA ANGLICA.*



Fig. 136. *GENISTA TINTORIA.*



Fig. 137. *ULEX EUROPAEUS.*



Fig. 138. *CYTISUS SCOPARIUS.*



Fig. 139. *ONONIS REPENS.*

Division II.—Calycifloræ.

CELASTRINEÆ.

Euonymus (L.). Spindle-tree.

E. europaeus (L.). *Fig. 130.* Spindle-tree. Prickwood. Denizen. Tree. V, VI.

Hedges. Very rare, and always planted.

L. Hedge near Gill Moss (D.).

C. Aston Wood (J.F.R.).

RHAMNEÆ.

Rhamnus (L.). Buckthorn.

R. catharticus (L.). *Fig. 131.* Purging Buckthorn. (?) Native. Shrub. V-VII.

Hedges and woods. Very rare.

C. Hedges at Newton, near Frodsham (J.F.R.).

R. Frangula (L.). Breaking Buckthorn. Native. Shrub. V-VII.

Woods and hedges. Rare.

L. On S. side of Simmonswood Moss; Dons Wood, near Sutton; Bath Wood, Ormskirk; Blaque Moss, Lathom; Side of Kirkby Moss (D.). Brushy Lane, near Rainford Junction (H.S.F.). 1893, Lane between Dungeon and Hale (Field Club).

SAPINDACEÆ.

Acer (L.). Maple.

A. Pseudoplatanus (L.). *Fig. 132.* "Sycamore." Denizen. Tree. V, VI.

In plantations, &c. Common, but not indigenous.

A. campestre (L.). *Fig. 133.* Maple. (?) Native or Denizen. Tree. V-VII.

Hedges and plantations. Occasional. Often planted.

L. Near Burscough Junction.

C. Oxton; Bromborough; Ness; &c. (Dr. G.).

Aesculus hippocastanum (L.). *Fig. 134.* Horse Chestnut. Alien. Tree. V, VI.

A native of Northern Greece. Often introduced into woods and plantations on both sides of the River Mersey, as in Calderstones Park near Liverpool, and Woods at Bromborough and Eastham.

LEGUMINOSÆ.

Genista (L.).

G. anglica (L.). *Fig. 135.* Needle Furze. Petty Whin. Native. P. VI-VIII.

Sandy and heathy ground. Rare in Lancashire. Occasional in Cheshire.

L. Lane between the shore at Dungeon and Hale Wood (D.). Greystone Heath (J.P.).

C. Near Eastham (H.). W. side of Heswall Hills, one mile from Gayton Hall (D.). Between Hooton and Bromborough (Miss C.G.). Raby (Miss J.). Near Woodchurch and Landican (J.S.; F.M.W.). 1875, in a swampy hollow one mile S.W. of Manley (R.B.). By R. Gowey, at Wimbolds Trafford (R.H.D.). Roadside between Spital and Clatterbridge (W.H. Holt). 1891-1901, abundant by ponds between Ness and the Chester Road; Pensby; Roadside S. of Arrowe Park; W. of Thingwall Mill; Backford Cross (Dr. G.).

G. tinctoria (L.). *Fig. 136,* Dyers' Greenweed. Native. P. VII-IX.

Pastures, &c., generally on clay. Local. Frequent in Cheshire.

C. By the Fender at Oxton; New Ferry; near Poole Hall; Plimyard Dale, Bromborough; Capenhurst; Willaston; Mollington; Dawpool; abundant about Meols (Dr. G.).

Ulex (L.).

U. europaeus (L.). *Fig. 137.* Furze. Gorse. Whin. Native. Shrub. I-VI.

Heath-banks, banks, dry fields and plantations. Common.

U. Gallii (Planch.). Autumnal Furze. Native. Shrub. VIII-X.

Heaths and sandy waste ground. Frequent in Lancashire. Common in Cheshire.

NOTE.—Common in Cheshire about Bidston and Thurstaston Hills, sometimes growing three or four feet high, sometimes quite prostrate—the habit of *U. nanus*, Forster.



Fig. 140. *ONONIS SPINOSA*.



Fig. 141. *TRIGONELLA PURPURASCENS*.



Fig. 142. *MEDICAGO SATIVA*.



Fig. 143. *MEDICAGO FALCATA*.



Fig. 144. *MEDICAGO LUPULINA*.



Fig. 145. *MEDICAGO DENTICULATA*.



Fig. 146. *MEDICAGO MACULATA*.

Cytisus (*Link*). Broom.

- C. scoparius** (*Link*). *Fig. 138*. Broom. Native. Shrub. V-VII.
Woods, hedges, railway banks, etc. Occasional in Lancashire.
Frequent in Cheshire.
C. Bidston; Heswall; Willaston; along the Chester railway, etc.

Ononis (*L.*). 'Rest Harrow.

- O. repens** (*L.*). *Fig. 139.* Procumbent 'Rest Harrow. Native.
P. VI-IX.

Sandy places near the sea. Common.

NOTE.—So named because its tough roots arrest the progress of a harrow.

- O. spinosa** (*L.*). *Fig. 140.* Upright Spinous 'Rest Harrow.
Native. P. VI, IX.

On poor pastures and waste places. Frequent.

L. Hale.

C. Between New Ferry and Bromborough Pool; abundant about Meols; Shotwick; Neston; Heswall; Thornton Hough; Denham Colliery; Stoke to the R. Gowey; Mollington, etc.

Trigonella (*D.C.*).

- T. purpurascens** (*L.*). *Fig. 141.* Birdfoot Fenugreek. Native.
A. VI, VII.

High sandy ground. Very rare and local.

C. At the junction of the roads leading to West Kirby and the Hill Houses (D.). Within twenty yards of Bidston Windmill (F.P.M.; H.S.F.); there in 1893 (Dr. G.). Caldy (Miss C. G.). Roadside on the Parkgate side of Ness; Refuse mounds at Denhall Colliery (Lord de T.; F.M.W.).

F. Point of Air (R.B.).

T. foenum-graecum.

C. Was found in 1863 as a casual at Claughton, (F.M.W.; H.S.F.).

Medicago (*L.*). Medick.

- M. sativa** (*L.*). *Fig. 142.* Lucerne. Alien. P. VI, VII.

Fields and waysides. Frequent. Naturalised.

L. Near the sandhills at Formby.

C. New Ferry; Claughton; Wallasey to Hoylake; Thurstanston; Great Saughall; Ellesmere Port.

M. falcata (L.). *Fig. 143.* Yellow or Sickle Medick. Colonist.
P. VI, VII.

L. 1892, Banks of the Canal below the Racecourse at Aintree (R.B.).

C. 1893–1898, Waste ground near Warren Station, not found since (Dr. G.). 1901 Birkenhead Docks (J.A.W.).

M. lupulina (L.). *Fig. 144.* Black Medick. Native. A. V–VIII.
In pastures and waste places, &c. Common.
NOTE.—Frequently sown in Wirral, mixed with rye grass and clover.

M. denticulata (Willd.). *Fig. 145.* Toothed Medick. Colonist.
A. V–VIII.

Waste places. Rare.

L. Roadside, about one mile S. of Kirkby (J.V.). Banks of Canal, near Aintree. Walton; Litherland (J.A.W.).

C. By Birkenhead Docks. 1894, Rubbish heaps above Bromborough Pool (Dr. G.).

b. apiculata (Willd.).

L. 1894, Canal banks, Aintree; Waste ground, near Bootle, 1900 (J.A.W.).

c. lappacea (Desv.).

1901, Bootle and Birkenhead (J.A.W.).

M. maculata (Sibth.). *Fig. 146.* Spotted Medick. Colonist.
A. V–VIII.

(*M. arabica (Huds.).*)

Waste ground. Very rare.

L. 1892, Canal banks, Aintree; Seven Pits, Walton (J.A.W.).

C. 1891, Waste ground near the shore N. of Parkgate (R.B.). 1901, Birkenhead Docks (J.A.W.).

M. mimima (Desv.).

L. 1901, as a Casual at Bootle and Linacre (J.A.W.).

Melilotus (L.). Melilot.

M. altissima (Thuill.). *Fig. 147.* Tall Yellow Melilot. Native.
B. or P. VI–VIII.

Fields and waste places. Frequent.

L. Mersey shore at Dingle; Speke; Garston (H.). Southport; Dean Farm, Lathom; Railway banks between Broad Green and Roby (D.). About Waterloo; Crosby; Formby (R.B.).

C. Little Sutton (H.). Runcorn; near Wallasey Pool (D.).



Fig. 147. *MELILOTUS ALTISSIMA*. Fig. 148. *MELILOTUS ALBA*. Fig. 149. *MELILOTUS PARVIFLORA*



Fig. 150. *TRIFOLIUM SUBTERRANEUM*.

Fig. 151. *TRIFOLIUM MEDIUM*.



Fig. 152. *TRIFOLIUM INCARNATUM.*



Fig. 153. *TRIFOLIUM ARVENSE.*



Fig. 154. *TRIFOLIUM STRIATUM.*

Heswall (Miss C. G.). Between Great Meols and Newton; near Hargreave Hall N. of Willaston (R.B.). Oxton; Bidston Junction; West Kirby; Bank of Ship Canal at Hooton (Dr. G.).

M. alba (*Desr.*). *Fig. 148.* White Melilot. Colonist. B. VII, VIII.

Waste places. Occasional. Increasing in the district.

L. E. bank of railway N. of Waterloo; Sandhills between Formby and Freshfield; Canal bank, near Maghull (R.B.).

C. Roadside near Storeton (Miss A. H.). About Bidston; Meols; Hoylake (Dr. G.). 1901, Birkenhead Docks (J.A.W.).

M. officinalis (*Desr.*). Field Melilot. Colonist. B. VII, VIII.

In fields and waste places. Rare.

(*M. arvensis* (*Wallroth*).)

L. Formby (Mrs. T. G., Jun.). Between Waterloo and Blundellsands W. of the railway (F.M.W.). Railway banks between Blundellsands and Hall Road for many years; Lane leading E. from Ainsdale Station (R.B.).

C. By Bromborough Pool Candle Works (D.). About Birkenhead Dock Station (H.S.F.). By the Canal E. of Mollington Viaduct (Lord de T.; F.M.W.). Near the Gasworks at Hoylake (Dr. G.).

M. parviflora (*Lam.*). *Fig. 149.* Small Yellow Melilot. Colonist. A. VII, VIII.

Waste places. Occasional.

L. Canal bank at Maghull; about Garston Docks (R.B.). Formby sandhills (T.B.).

C. Bidston Heath (W.H.H.). Birkenhead Docks (R.B.). 1892-6, Bidston Junction; Wallasey; Meols; Hoylake (Dr. G.).

M. messanensis. Has occurred as a casual at Birkenhead Docks (F.M.W.).

Trifolium (*L.*). Clover.

T. subterraneum (*L.*). *Fig. 150.* Subterranean Trefoil. Native. A. V-VII.

On banks. Very rare.

C. Near Parkgate (H.). 1874, Field on a level with the top of an old wall opposite where the footpath from Hoylake joins the road at the Hill Houses (R.B.). Probably now extinct.

T. pratense (*L.*). Red Clover. Native. P. V-IX.

a. *sativum* (*Syme*).

By the borders of fields as an escape from cultivation.

b. sylvestre (Syme).

Pastures, roadsides, &c. Common.

T. medium (L.). Fig. 151. Zigzag Clover. Native. P. VI-IX.

On banks, by roadsides, &c. Occasional.

C. Claughton Moor; Higher Bebington; Bromborough; S. of Hadlow Road Station (Dr. G.).

T. ochroleucum (L.). Cream-coloured Clover. Casual. P. VI, VII.

L. Railway bank at Fazakerley; near Ormskirk (D.).

C. About the Birkenhead Docks.

T. incarnatum (L.). Fig. 152. Crimson Long-headed Clover. Denizen. A. VI, VII.

An escape from cultivation. Occasional.

L. Formby, near the sandhills.

C. Waste places about the railway, near West Kirby (A.K.B.). Denhall; Fields about Blacon Point (Dr. G.).

T. arvense (L.). Fig. 153. Haresfoot Trefoil. Native. A. VII-IX.

Sandhills. Frequent. Rare inland.

L. Formby sandhills.

C. Sandhills, Wallasey to Hoylake.

T. striatum (L.). Fig. 154. Soft Knotted Trefoil. Native. A. VI-VIII.

Dry sandy places. Rare.

L. Rainhill (D.). About the railway between Hightown and Formby (R.B.).

C. 1857 to 1861, various localities are recorded about Wallasey, Arrowe Brook, Frankby, Saughall Massie, Leasowe and West Kirby (Lord de T.; &c.). 1873, from Denhall to near the limekiln, N. of Parkgate (F.M.W.). 1893, Meols; just W. of Caldy (Dr. G.).

b. erectum (Leight).

Has been recorded.

T. hybridum (L.). Alsike Clover. Alien. P. VI-IX.

Fields and roadsides as the remains of cultivation. Frequent.

b. elegans (Savi.).

L. Garston (T.G.). Knotty Ash; 1861, the type form on the sandhills at Crosby (H.S.F.).

C. Roadside near Arrowe Brook (D.). Claughton; Frankby; S. of Hargreave Hall; &c. (Dr. G.).



Fig. 155. *TRIFOLIUM FRAGIFERUM.*



Fig. 156. *TRIFOLIUM RESUPINATUM.*



Fig. 157. *TRIFOLIUM AGRARIUM.*



Fig. 158. *TRIFOLIUM PROCUMBENS.*



Fig. 159. *TRIFOLIUM FILIFORME.*



Fig. 160. *ANTHYLLIS VULNERARIA.*

T. repens (*L.*). White or Dutch Clover. Native. P. V-IX.

Fields, roadsides, and waste ground. Very common.

T. fragiferum (*L.*). *Fig. 155.* Strawberry-headed Trefoil. Native. P. VI-VIII.

Damp, grassy ground near the shore. Frequent.

L. About Birkdale; Hall Road.

C. Bidston Marsh; Meols; Parkgate; Shotwick Marsh; Higher Ferry on Dee.

T. resupinatum (*L.*). *Fig. 156.* Small Purple Clover. Casual. A. VII.

Probably introduced with foreign hay. Rare.

C. Near the Magazines at New Brighton (*Mr. B.*). 1896, Hose Side, Wallasey (*Miss W.*).

T. agrarium (*L.*). *Fig. 157.*

Has been found as a casual.

T. procumbens (*L.*). *Fig. 158.* Hop Trefoil. Native. A. V-IX. Pastures, &c. Common.

T. dubium (*Sibth.*). Lesser Yellow Trefoil. Native. A, V-IX.

(*T. minus* (*Sm.*)).

Fields, roadsides, &c. Common.

T. filiforme (*L.*). *Fig. 159.* Least Yellow Trefoil. Native. A. VI-IX.

On commons and other dry places. Occasional.

L. Lane near Formby, one mile N. of Hightown Station (*R.B.*).

C. In Rake Lane, W. of Dunham-on-the-Hill (*F.M.W.*; *W.W.N.*). 1875, Heath Lane, Stoke; by the Windmill at Neston; at the corner of the road from Two Mills to Capenhurst (*R.B.*). Meols Common; 1893, Field opposite Grange Landmark; 1896, abundant on the lawn of a private house in King's Lane, Dacre Hill, Rock Ferry (*Dr. G.*).

Anthyllis (*L.*). Lady's Fingers.

A. Vulneraria (*L.*). *Fig. 160.* Kidney Vetch. Lady's Fingers. Native. P. VI-VIII.

On the sandhills. Common. Rare inland.

Lotus (*L.*). Bird's Foot Trefoil.

L. corniculatus (*L.*). *Fig. 161.* Bird's Foot Trefoil. Native. P. VI-VIII.

Waysides, sandhills, &c. Very common.

b. crassifolius (*Pers.*).

The sandhills. Frequent.

L. tenuis (*Waldst. and Kit.*). Slender Bird's Foot Trefoil. Native.
P. VI-VIII.

Damp places. Very rare. Perhaps it has been overlooked.

L. Moist ground near Huyton Quarry (*F.M.W.*). Not recorded for many years.

L. pilosus (*Beeke*). *Fig. 162.* Hairy Bird's Foot Trefoil. Native.
P. VII-IX.

(*L. major* (*L.*)).

By the sides of ditches and other moist places. Common.

***Ornithopus* (*L.*).** Bird's Foot.

O. perpusillus (*L.*). *Fig. 163.* Bird's Foot. Native. A. V-VIII.

Heathy ground. Frequent.

C. Oxton; Thingwall; Grange Hill; Ness; Eastham.

O. compressus (*L.*).

L. 1893, waste ground near Walton (*J.A.W.*).

C. 1861, as a casual at Birkenhead Docks (*F.M.W.*; *H.S.F.*).

***Coronilla* (*L.*).**

C. varia (*L.*). Alien.

L. 1876, and for many years, a large patch on Cheshire Lines Railway bank, close to a bridge that crosses between St. Anne's Church and River Mersey (*R.B.*).

C. Neighbourhood of Upton and Frankby, as an escape from cultivation.

***Vicia* (*L.*).** Vetch.

V. hirsuta (*Koch.*). Hairy Tare. Native. A. VI-IX.

Cornfields, &c. Frequent.

C. Eastham; Poole Hall; Little Sutton; Willaston.

V. tetrasperma (*Moench*). *Fig. 164.* Four seeded Tare. Native.
A. VI-VIII.

Cornfields, waysides, &c. Rare.

C. 1875, Hedgebanks between Moreton and Saughall Massie; between Greasby and Irby Mill Hill (*R.B.*). Wallasey; Backford (*Miss W.*). Roadside at Newton-cum-Larton (*A.K.B.*); there in 1899.

V. Cracca (*L.*). *Fig. 165.* Tufted Vetch. Native. P. VI-VIII.

Hedges, thickets, &c. Common.



Fig. 161. *LOTUS CORNICULATUS.*



Fig. 162. *LOTUS PILOSUS.*

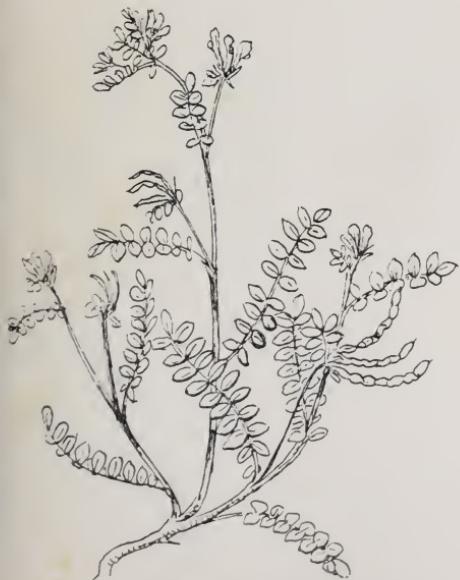


Fig. 163. *ORNITHOPUS PERPUSILLUS.*

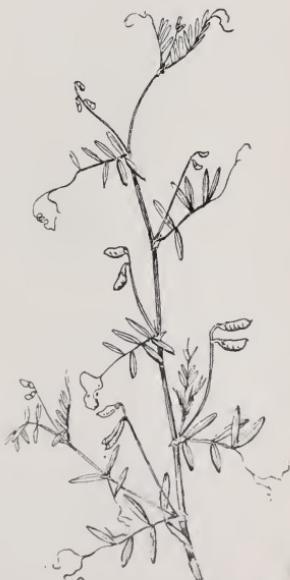


Fig. 164. *VICIA TETRASPERMA.*



Fig. 165. Vicia cracca.

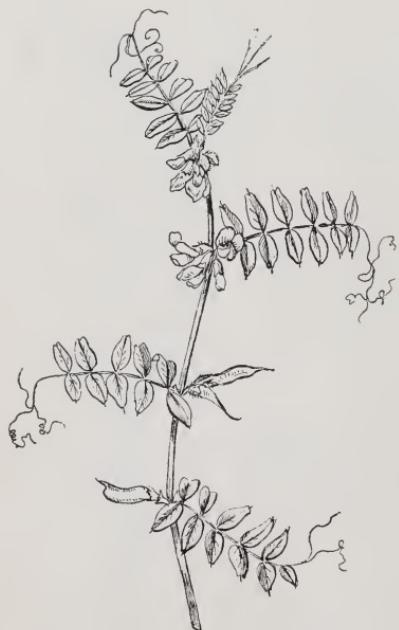


Fig. 166. Vicia sepium.



Fig. 167. Vicia angustifolia.

V. sepium (*L.*). *Fig. 166.* Bush Vetch. Native. P. VI-IX.

Woods and shady banks. Frequent.

C. Landican; Bank at Bromborough Station.

V. lutea (*L.*).

1862, on the bank of River Dee, near West Kirby (^{Miss C. G.}). It was washed away in 1863, and has not been seen since.

V. sativa (*L.*). Cultivated Vetch. Alien. VI-IX.

Among corn, and about the borders of fields, but it has no claim to be considered indigenous.

V. angustifolia (*Roth.*). *Fig. 167.* Narrow-leaved Vetch. Native.

A. VI-VIII.

a. segetalis (*Thunb.*).

By roadsides, among corn, &c. Common.

C. With white flowers, every year on the roadside on the hill above Burton (Dr. G.).

b. Bobartii (*Forster*). *Fig. 168.*

Sandhills and dry sandy pastures. Frequent.

V. lathyroides (*L.*). *Fig. 169.* Spring Vetch. * Native. A. V-VII.

The sandhills. Frequent. Rare elsewhere.

C. Slope of Grange Hill, by the Hill Houses, West Kirby (R.B.). Denhall (Dr. G.).

V. villosa.

L. As a casual at Aintree (J.A.W.).

Lathyrus (*L.*). Vetchling.

L. Aphaca (*L.*). Casual. A. V-VIII.

Very rare.

L. 1852, a single plant on Seaforth Common (H.S.F.). 1864, Cornfield at Crosby (Miss R.). 1901, Aintree, almost annually (J.A.W.).

L. pratensis (*L.*). *Fig. 170.* Meadow Vetchling. Native.

P. VII, VIII.

Meadows and hedges. Common.

L. latifolius (*L.*). Broad-leaved Everlasting Pea. Alien. P. VII, VIII.

L. Opposite the Marine Terrace, Waterloo (R.B.).

L. sylvestris (*L.*). *Fig. 171.* Narrow-leaved Everlasting Pea.

Casual. P. VII, VIII.

Bushy and sandy places. Very rare.

C. 1850, Sutton Bridge, Frodsham (D.). 1894, and a few following years, a good-sized patch on Wallasey sandhills (Miss W.; Dr. G.).

L. macrorrhizus (*Wimm.*). *Fig. 172.* Tuberous Bitter Vetch. Native. P. V-VIII.

(*Orobus tuberosus* (*L.*)).

Woods and shady places. Occasional.

C. Woodchurch; Bromborough; Eastham; N. of Willaston; Shotwick (Dr. G.).

ROSACEÆ.

Prunus (*L.*).

P. communis (*Huds.*). *Fig. 173.* Blackthorn. Sloe. Native. Shrub. IV, V.

P. spinosa (*L.*).

In hedges and bushy places. Common.

P. insititia (*L.*). Bullace. Native. Shrub. IV-VI.

Hedges, &c. Occasional.

C. Oxton (D.). In hedges near Claughton; Bidston; Moreton; West Kirby (F.M.W.). Marsh Green, but rare about Frodsham (J.F.R.).

P. domestica (*L.*). Wild Plum. Denizen. Tree. IV-VI.

In hedges. Occasional.

L. In hedges at Aigburth; Childwall, &c. (D.).

C. At the foot of Overton Hills (J.F.R.). In several parts of Wirral, but always suspiciously situated (F.M.W.). 1892, Prenton Lane; 1902, near Frankby, very large (Dr. G.).

P. Avium (*L.*). Wild Cherry. (?) Native. Tree. V, VI.

Hedges and plantations on both sides of the River Mersey. Occasional.

P. Cerasus (*L.*). *Fig. 174.* Dwarf Cherry. Denizen. Shrub. V, VI.

In plantations. Rare in L. Occasional in C.

C. Bank of the R. Mersey near Eastham (F.M.W.). Cattenhall and Durnsdale Valley near Frodsham (J.F.R.). Plimyard Dale, Bromborough; Raby Mere; Irby; Mollington; Heath Lane, Stoke (Dr. G.).

P. Padus (*L.*). *Fig. 175.* Bird Cherry. Denizen. Tree. V.

Woods and Hedges. Rare. Generally planted.

L. Aigburth; Childwall (D.).

C. Eastham (D.).



Fig. 168. *VICIA ANGUSTIFOLIA*.
b. *BOBARTII*.



Fig. 169. *VICIA LATHYROIDES*.



Fig. 170. *LATHYRUS PRATENSIS*.



Fig. 171. *LATHYRUS SYLVESTRIS*.



Fig. 172. *LATHYRUS MACRORRHIZUS*



Fig. 173. *PRUNUS COMMUNIS*.

Spiraea (L.).

S. salicifolia (L.). Casual. Shrub. VII.

Is occasionally met with as an escape from cultivation.

S. Ulmaria (L.). *Fig. 176.* Meadow Sweet. Queen of the Meadows. Native. P. VI-VIII.

By the side or ditches and ponds, and in moist meadows. Common.

Rubus (L.). Bramble or Blackberry.

*Section I.—FRUTESCENTES.**Sub-Section I.—Idaei.*

R. Idaeus (L.). *Fig. 177.* Raspberry. Native. P. VI, VII.

In woods and thickets, also about the edges of the Lancashire Mosses. Frequent.

C. About Storeton; Barnston; Thingwall; Bromborough; Raby; Hooton; Eastham; Overpool.

*Sub-Section II.—Fruticosi. Fig. 178.**Suberecti.*

[*R. suberectus* (*Anders.*). Suberect Bramble. Native. Shrub. VI, VII.]

Boggy woods and heaths. Rare.

L. Bath Wood, Crimskirk; Crosby; Southport (D.).

C. Overton Hills (J.F.R.).]

NOTE.—The records of this species cannot be accepted without modern confirmation.

R. plicatus (*W. and N.*). Plaited-leaved Bramble. Native. Shrub. VII, VIII.

Heathy and bushy places. Rare.

L. Banks of seven pits on the Aintree road (D.); now destroyed. Simmonswood Moss, 1900 (J.A.W.).

C. Patrick Wood, Bromborough (H.S.F.).

[*R. nitidus* (*W. and N.*).]

C. Bidston Hill (A. E. Lomax).]

NOTE.—Recent confirmation is desirable.

Subrhamnifolii.

R. affinis (*W. and N.*). Intermediate Bramble. Native. Shrub. VII, VIII.

Heathy places. Rare.

L. Priory Lane, Walton (D.); now destroyed. Ditton, near the railway station (H.S.F.).

Rhamnifolii.

- R. Lindleianus** (*Lees.*). Lindley's Bramble. Native. Shrub. VII, VIII.
Hedges and thickets. Common. (H.S.F.; F.M.W.).
- R. rhamnifolius** (*W. and N.*). Buckthorn-leaved Bramble. Native. Shrub. VII, VIII.
Hedges and thickets. Very rare.
C. 1894, Eastham (J.A.W.).
- R. pulcherrimus** (*Neum.*).
Woods and hedges. Occasional.
L. 1901, Lydiate; Thornton (J.A.W.).
C. 1897, Eastham Wood (J.A.W.).

Villicaeles.

- R. mercicus** (*Bagnall*).
b. bracteatus (*Bagnall*).
L. Black Bull Lane, Walton; near Ince Blundell (J.A.W.).
- R. villicaulis** (*W. and N.*). Sp. collectiv. Pilose-stemmed Bramble. Native. Shrub. VII, VIII.
In woods and heathy places. Frequent in Cheshire. The type form is not known with us.
- b. Selmeri* (*Lindeb.*).
L. 1896, Simmonswood Moss; 1900, Altcar (J.A.W.).
- d. Calvatus* (*Blox.*).
L. Crosby; 1893, Netherton (J.A.W.).
C. Outskirts of woods in the upper part of Wirral (F.M.W.).

R. gratus (*Focke*).

- Hedges and thickets. Frequent in L.
L. 1894, Fazakerley; Aintree; 1896, Walton; 1901, Lydiate (J.A.W.).

Discolores.

- R. rusticanus** (*Merc.*). Two-coloured-leaved Bramble. Native.
Native. Shrub. VII, VIII.
Hedges and thickets. Occasional in L. Common in C.

Silvatici.

- R. lentiginosus** (*Lees.*).
Borders of woods. Rare.
C. 1896, Eastham Woods (J.A.W.).
- R. macrophyllus** (*Weihe*). Large-leaved Bramble. Native. Shrub. VII, VIII.
Hedges, &c. Occasional.



Fig. 174. PRUNUS CERASUS.



Fig. 175. PRUNUS PADUS.



Fig. 176. SPIRÆA ULMARIA.



Fig. 177. RUBUS IDÆUS.



Fig. 178. RUBUS FRUTICOSUS.



Fig. 179. RUBUS CÆSIUS.



Fig. 180. GEUM URBANUM.

b. macrophyllus (*W. and N.*).

C. Hedge at the back of Mr. Ravenscroft's, Claughton
(F.M.W.).

Vestiti.

R. Sprengelii (*Weihe*). Sprengel's Bramble. Native. Shrub.
VII, VIII.

Woods and shady hedgerows. Frequent.

b. Sprengelii (*Weihe*).

L. Hedges at Everton (D.); now destroyed. 1892, Walton; Simmonswood (J.A.W.).

C. In the Fir wood between Claughton and Bidston (F.M.W.). 1891, Eastham (J.A.W.).

R. leucostachys (*Sm.*). Long-clustered Bramble. Native. Shrub.
VII, VIII.

Hedges and waste places. Frequent.

L. In hedges near Walton and Walton Rakes (D.). Hedges about Aintree (F.M.W.). Fazakerley; about the Seven Pits (J.A.W.).

Egregii.

R. mucronatus (*Blox*). Cuspidate-leaved Bramble. Native.
Shrub. VII, VIII.

Hedges and woods. Rare.

L. Ince Blundell (J.A.W.).

C. Patrick Wood, Bromborough (H.S.F.). Claughton (J.A.W.).

R. infestus (*Weihe*).

Hedges and thickets. Rare.

L. 1894, Black Bull Lane, Walton (J.A.W.).

Radulæ.

{ **R. Radula** (*Weihe*).
Has been seen near to Chester, but just beyond our district. }

R. oigoclados (*M. and L.*).

b. Newbouldii (*Bab.*).

L. 1898, Walton; Thornton; Netherton (J.A.W.).

Sub-Bellardiani.

R. fuscus (*W. and N.*).

c. macrostachys (*P. J. Muell*).

L. 1900, Walton; Hightown (J.A.W.).

R. pallidus (*W. and N.*).

Rare.

C. Thickets and the edges of the Fir woods at Claughton and Bidston, and of the plantations on N. side of Birkenhead Park (F.M.W.).

R. scaber (*Weihe*). Rough Bramble. Native. Shrub. VII, VIII.

Open woods. Rare.

C. Patrick Wood, Bromborough (F.M.W.).

Koehlerian*i*.**R. rosaceus** (*W. and N.*). Sp. collectiv. Rose-flowered Bramble. Native. Shrub. VII, VIII.

Open woods. Occasional.

L. Hedges at Walton; Bold Bridge Farm; Farnworth Quarry (H.S.F.).

C. Fir plantations at Claughton, particularly near the entrance to Manor House Farm, Egerton Road, Claughton (F.M.W.).

b. hystrix (*W. and N.*).

L. 1896, Simmonswood Moss (J.A.W.).

C. Near Eastham (J.A.W.).

c. silvestris (*Murr.*).

L. 1896, near Ince Blundell (J.A.W.).

C. 1894, Eastham Woods (J.A.W.).

R. Koehleri (*W. and N.*). Koehler's Bramble. Native. Shrub. VII, VIII.**[a. Koehleri** (*Weihe*)].

L. Hedges at Walton and Everton (H.S.F.).

C. Hedges at Bromborough (H.S.F.).]

NOTE.—It is doubtful whether the type-form occurs with us.

***var. dasypphyllus* (*Rogers*).**

C. Bidston Hill and Oxton (J.A.W.).

Caesil.**R. dumetorum** (*W. and N.*). VI-VIII.

Hedges and thickets. Common.

a. ferox (*Weihe*).

L. 1894, Crosby; Walton; Aintree; Maghull (J.A.W.).

C. Bidston Hill (J.A.W.).

b. diversifolius (*Lindley*).

Hedges, &c. Rare in Lancashire. Frequent in Cheshire.

L. "Hedges" (*H.S.F.*).

C. "Hedges; about the first Bramble that we find in flower" (*F.M.W.*).

e. tuberculatus (*Bab.*).

Hedges, &c. Not recorded from Cheshire.

L. Frequent in hedges at Walton and Everton (*H.S.F.*).

f. concinnus (*Warren*).

L. 1896, Walton (*J.A.W.*).

R. corylifolius. Small Hazel-leaved Bramble. Native. Shrub. VII, VIII.

Hedges and thickets. Very common.

a. sublustris (*Lees*).

L. In hedges, Walton; Aintree; Netherton (*J.A.W.*).

NOTE.—A remarkable form of this plant occurs in several places near Walton, with large septenate leaves.

[b. conjugens (*Bab.*).

C. In hedges in several parts of Wirral (*F.M.W.*).

c. purpureus (*Bab.*).

C. About Oxton and Bidston Heaths (*F.M.W.*.)]

R. caeius (*L.*). *Fig. 179.* Dewberry. Native. Shrub. VII, VIII.

On the sandhills, very common. Hedgebanks, frequent.

b. aquaticus (*W. and N.*).

L. 1894, Crosby sandhills; Formby; Southport (*J.A.W.*).

C. Wallasey; West Kirby (*J.A.W.*).

c. intermedius (*Bab.*).

L. 1896, Fazakerley (*J.A.W.*).

d. ulmifolius.

C. Dunsdale Valley near Frodsham (*J.F.R.*). Bank on Grange Hill (*Dr. G.*).

R. rosaceus × *Sprengelii*.

L. 1896, Ince Blundell (*J.A.W.*).

R. leucostachys × *mercicus*. var. *b. bracteatus*.

L. 1896, Aintree (*J.A.W.*).

NOTE.—In this critical genus the field work was originally done almost entirely by Messrs. H. S. Fisher and F. M. Webb.

During the thirty years that have elapsed since that period, the nomenclature of Rubus has been completely transformed by the work of experts, so that in the ninth edition of *The London Catalogue of British Plants*, 1895,

there are recorded no less than 165 species and sub-species. The *Liverpool Flora* of 1872 contained 19 species, as against 43 species and sub-species in this edition.

We are entirely indebted to Mr. J. A. Wheldon, F.L.S., for the present rearrangement of this difficult family, by which its nomenclature is brought up to modern requirements.

The Handbook of the British Rubi, by Rev. W. Moyle Rogers, is recommended for study.

***Geum* (L.). Avens.**

G. urbanum (L.). *Fig. 180.* Wood Avens. Native. P. VI-VIII.
Hedgebanks and thickets Common.

G. intermedium (Ehrh.). Intermediate Avens. Native. P. VI, VII.
In moist places. Very rare.
L. In a ditch between the Horn Smithies and the entrance to Knowsley Park (D.).

G. rivale (L.). *Fig. 181.* Water Avens. Native. P. VI, VII.
In moist places. Very rare.
L. By the side of a brook below Childwall Abbey; Bath
Wood, Ormskirk (D.), (?) now extinct.
C. 1875, Banks of Moors Brook, between Alvanley and
Manley (R.B.). 1886, Field by the R. Gowey at Wimbold's
Trafford (R.H.D.).

***Fragaria* (L.). Strawberry.**

F. vesca (L.). *Fig. 182.* Strawberry. Native. P. V, VI.
Woods and hedgebanks. Common.

F. elatior (Ehrh.). Hautbois Strawberry. Alien. P. V, VI.
Banks and hedgerows. Rare.
L. Banks of the R. Mersey, near the Decoy (D.); probably
wild here (Dr. J. B. Wood). Roby, by a ditch side, seemingly
indigenous (F.P.M.).

***Potentilla* (L.). Cinque-foil.**

P. Fragariastrum (Ehrh.). *Fig. 183.* Barren Strawberry. Native.
P. IV, V.
Woods, banks, &c. Common.

P. Tormentilla (Neck). *Fig. 184.* Tormentil. Native. P. V-VIII.
On heaths, in open woods, &c. Very common.

P. procumbens (Sibth.). Creeping Tormentil. Native. P. VI-VIII.
Hedge banks and waste places. Occasional.
C. Neston, &c.



Fig. 181. *GEUM RIVALE*.



Fig. 182. *FRAGARIA VESCA*.



Fig. 183. *POTENTILLA FRAGARIASTRUM*.



Fig. 184. *POTENTILLA TORMENTILLA*.



Fig. 185. POTENTILLA REPTANS.



Fig. 186. POTENTILLA ANSERINA.

P. reptans (*L.*). *Fig. 185.* Creeping Cinque-foil. Native. P. VI-IX.

Pastures, banks and roadsides. Common.

P. anserina (*L.*). *Fig. 186.* Silverweed. Native. P. V-VIII.

Roadsides, pastures and waste places. Common.

P. argentea (*L.*). Hoary Cinque-foil. Native. P. VI-VIII.

Dry banks and roadsides. Very rare.

C. 1857, Bank of River Dee, near Parkgate (D.); there in 1867 (T.G.). Railway banks near Chester (J.F.R.).

P. Comarum (*Nestl.*). *Fig. 187.* Marsh Cinque-foil. Native. P. VI-VIII.

(*Comarum palustre* (*L.*)).

Ponds and marshy places. Frequent.

L. Kirkby; Barton; Halsall; Lydiate.

C. Plentiful around ponds about Claughton Moor; Landican; Irby; Willaston to Ledsham; Denhall; The Strawberry; Little Sutton (Dr. G.). West Kirby; Dunham.

Alchemilla (*L.*). Lady's Mantle.

A. arvensis (*Lam.*). *Fig. 188.* Parsley Piert. Native. A. V-VIII.

Cultivated fields and waste places. Common.

A. vulgaris (*L.*). *Fig. 189.* Lady's Mantle. Native. P. V-VIII.

Pastures and waysides. Locally common.

L. Walton Junction; Kirkby; Rainford; Orrell; &c.

C. Dibbinsdale; Plimyard Dale; Raby; Shotwick; &c.

a. pratensis (*Schmidt*).

L. 1892, Railbanks at Walton (J.A.W.).

Agrimonia (*L.*). Agrimony.

A. Eupatoria (*L.*). *Fig. 190.* Agrimony. Native. P. VI-VIII.

Sides of fields and waste places. Frequent.

L. Gateacre; Hale; &c.

C. Bidston; Prenton; Leasowe; Newton; Dawpool; Parkgate; Mollington; Stoke.

Poterium (*L.*). Burnet.

P. Sanguisorba (*L.*). *Fig. 191.* Salad Burnet. Native. P. VI-VIII.

Borders of fields. Very rare.

L. Below Halsall (D.).

P. officinale (*Hook.*). *Fig. 192.* Great Burnet. Native. P. VI-VIII.

(*Sanguisorba officinalis*, (*L.*).)

Moist Meadows. Very rare.

L. In a meadow at Parkgate Farm, Lathom (D.). Ponds by Rufford Station.

C. 1851, Field between Weston Canal and Aston Hall (D.). 1880, Meadows on the W. side of the Weaver Valley between Frodsham Bridge and Cotton Hall (R.B.).

Group I.—*Spinosissimæ. Rosa* (*L.*). Rose.

R. spinosissima (*L.*). *Fig. 193.* Burnet-leaved Rose. Native. Shrub. V, VI.

Sandhills, very common. Hedges (inland), occasional.

C. Rocks at Burton Point; Hedges at Greasby; Landican; Mount Road, Prenton Hill (Dr. G.).

R. hibernica (*Sm.*). *Fig. 194.* Irish Burnet Rose. (?) Native. Shrub. VI, VII.

In hedges. Very rare and local.

a. *eu-hibernica* (*Baker*).

C. In the low hedge by the bridge which crosses the Birket, taking the path from Great Meols towards Leasowe (F.M.W.).

b. *glabra* (*Baker*).

C. Hedges about Great Meols; Hoylake; Hedges on Irby Mill Hill; Frankby Heath; Roadside hedge between Raby Water Mill and Raby Village (F.M.W.).

R. pimpinellifolia × canina = *R. hibernica* (*Sm.*), var. *glabra* (*Baker*).

C. 1899, Hoylake (J.A.W.).

This hybrid is so abundant as to fill many of the hedges, and except one bush of *R. Doniana*, or possibly *R. Robertsoni*, it belongs exclusively to the var. *glabra*. Its hybrid origin is shown by the universally abortive fruit.—A. H. Wolley Dod, in *Bot. Exch. Club Report*, 1899.

R. involuta (*Sm.*). Sabine's Rose. (?) Native. Shrub. VI, VII.

b. *Sabini* (*Woods*).

In hedges. Rare.

C. In a hedge at Liscard; a bush or two on a small heath near Bebington Station (D.). Near Raby Mere; Eastham (H.S.F.). Hedge bordering S. side of Upton Road, W. of Claughton Village; Hedge by roadside entering Greasby; and in hedge of the lane leading thence to Irby (F.M.W.).



Fig. 187. *POTENTILLA COMARUM*.



Fig. 188. *ALCHEMILLA ARVENSIS*.



Fig. 189. *ALCHEMILLA VULGARIS*.



Fig. 190. *AGRIMONIA EUPATORIA*.



Fig. 191. POTERIUM SANGUISORBA.



Fig. 192. POTERIUM OFFICINALE.



Fig. 193. ROSA SPINOSISSIMA.



Fig. 194. ROSA HIBERNICA.

Group II.—Villosæ.

R. mollis (*Sm.*). *Fig. 195.* Soft-leaved Rose. Native. Shrub. VI, VII.

In hedges. Rare.

L. Bath Wood, Ormskirk (T.W.; H.S.F.).

C. Hoylake (H.S.F.). Hedges inland of Parkgate (F.M.W.).

b. cærulea (*Woods*).

C. A form having glabrous calyx tube and peduncles grows by the roadside between Saughall and Upton (F.M.W.).

R. tomentosa (*Sm.*). *Fig. 196.* Downy-leaved Rose. Native. Shrub. VI, VII.

In hedges and bushy places. Frequent.

C. About Storeton; Meols; Raby Mere; Ledsham; Backford; Mollington; &c.

Group III.—Rubiginosæ.

R. rubiginosa (*L.*). *Fig. 197.* Sweetbriar. Denizen. Shrub. V–VII.

C. 1880, a few plants above the Red Noses, New Brighton, probably escaped from cultivation (Dr. G.).

Group IV.—Caninæ.

R. canina (*L.*). *Fig. 198.* Dog Rose. Native. Shrub. VI, VII.

a. lutetiana (*Leman*).

Hedges and thickets. Very common.

e. dumalis (*Bechst.*).

Hedges and thickets. Very common.

g. urbica (*Leman*).

Hedges, &c. Very common.

j. dumetorum (*Thuill.*).

Hedges. Frequent in Cheshire, and observed in two or three places on the Lancashire side (F.M.W.).

n. tomentilla (*Leman*).

C. One bush at corner of lane leading from Greasby to Irby, which has characters intermediate between it and *e. dumalis*; it may be *k. obtusifolia*, *Desv.* (F.M.W.).

p. verticillacantha (*Mérat.*).

C. Upton Road just W. of Claughton Village; between Moreton and Hoylake (F.M.W.). Frodsham (J.F.R.).

NOTE.—Some of the plants have hispid, and others smooth peduncles (F.M.W.).

R. Crepiniana (*Déséglise*).

C. Hedges of the fields between Moreton and Hoylake (F.M.W.).

Group V.—Systylæ.**R. arvensis** (*Huds.*). *Fig. 199.* White-flowered Trailing Rose. Native. Shrub. VI-VIII.

In hedges, &c. Very common.

R. cinnamomea (*L.*).

L. As a casual where the railway crosses the R. Alt at Kirkby (w.s.).

NOTE.—Plants of *R. hibernica*, *R. involuta*, b *Sabina*, *R. involuta*, k. *Wilsoni*, and other rare or critical forms were brought from their places of growth and planted in the hedges in the Sandcroft, Claughton Village, by Mr. F. M. Webb, about 1870.

Our knowledge of the local Roses is almost entirely due to Messrs. Fisher and Webb. More recent work, however, is eminently desirable.

Authority for Rosa, Rev. W. Moyle Rogers.

Pyrus (*L.*).**P. terminalis** (*Ehrh.*). Wild Service Tree. Denizen. Tree. V, VI.

L. Originally planted on the rocks at Knot's Hole, near Liverpool, by the River Mersey (F.M.W.).

P. Aria (*Sm.*). *Fig. 200.* The White Beam Tree. Denizen. Tree. V.

In plantations. Common. Always planted.

P. Aucuparia (*Gaertn.*). *Fig. 201.* Mountain Ash. Rowan. Native or Denizen. Tree. V, VI.

Frequent, but often planted.

L. It is truly wild on S. side of Simmonswood Moss, very dwarfed.

C. Truly wild on Bidston and Overton Hills. Barnston Dale; Capenhurst (Dr. G.).

P. communis (*L.*). *Fig. 202.* Wild Pear. Denizen. Tree. IV, V.*a. Pyraster* (*L.*). On both sides of the River Mersey. Occasional.

C. Raby Mere (Miss w.). Saughall Massie; Heath Lane, Stoke (Dr. G.).

P. malus (*L.*). *Fig. 203.* Crab-apple. Native. Tree. IV, V.

Hedges and woods. Frequent, but decreasing.

a. acerba (*D. C.*).

Frequent.



Fig. 195. ROSA MOLLIS.



Fig. 196. ROSA TOMEONTOSA.



Fig. 197. ROSA RUBIGINOSA.



Fig. 198. ROSA CANINA.



Fig. 199. ROSA ARVENSIS.



Fig. 200. PYRUS ARIA.



Fig. 201. PYRUS AUCUPARIA.



Fig. 202. PYRUS COMMUNIS.



Fig. 203. PYRUS MALUS.



Fig. 204. CRATÆGUS OXYACANTHA.



Fig. 205.
SAXIFRAGA
TRIDACTYLITES.



Fig. 207.
CHRYSOSPLENIUM OPPOSITIFOLIUM.

Fig. 206.
SAXIFRAGA
GRANULATA.

b. mitis (*Wallr.*).

Common.

C. About Bebington; Raby Mere; Ness; Capenhurst; &c.
Authority on Pyrus, Rev. Augustin Ley.

***Crataegus* (L.). Hawthorn.**

C. *Oxyacantha* (L.). *Fig. 204.* Whitethorn, Hawthorn, or May. Native. Tree. V, VI.

a. oxyacanthoides (*Thuill.*).

In hedges. Rare.

C. 1867, Cattenhall near Frodsham (J.F.R.). Birkenhead Park, probably planted (F.M.W.).

d. monogyna (*Jacq.*).

In hedges, woods, &c. Very common, but frequently planted.

SAXIFRAGEÆ.

***Saxifraga* (L.). Saxifrage.**

S. *tridactylites* (L.). *Fig. 205.* Rue-leaved Saxifrage. Native. A. IV-VII.

The sandhills, frequent. On walls, rare.

L. The sandhills between Liverpool and Southport (H.).

C. The sandhills from New Brighton to West Kirby; old walls at Bidston and Wallasey (D.). Walls at Prenton (H.S.F.; F.P.M.). 1876, Walls at Greasby; 1898, Walls at Frankby; Walls in Town Lane, Higher Bebington (R.B.).

S. *granulata* (L.) *Fig. 206.* Meadow Saxifrage. Denizen. P. V, VI.

Open grassy places. Very rare. Planted.

L. In Woolton Park, with double flowers (H.). In an open part of a wood at the top of Jack Lane, West Derby (D.).

***Chrysosplenium* (L.). Golden Saxifrage.**

C. *oppositifolium* (L.). *Fig. 207.* Opposite-leaved Golden Saxifrage. Native. P. IV, V.

In damp shady places. Occasional.

C. About Raby Mere; along the brook in Barnston Dale.

C. *alternifolium* (L.). *Fig. 208.* Alternate-leaved Golden Saxifrage. Native. P. IV.

Boggy places in Flint. Local.

F. Nant-y-Flint, by the stream (R.B.).

Parnassia (L.).

- P. palustris (L.).** *Fig. 209.* Grass of Parnassus. Native. P. VII, VIII.

Moist places among the sandhills. Frequent.

C. Behind Leasowe embankment; The Langfields, and at West Kirby. Near Queensferry (R.H.D.).

Ribes (L.).

- R. Grossularia (L.).** *Fig. 210.* Gooseberry. Denizen. Shrub. IV, V.

Hedges, &c. Occasional, and always as an escape from cultivation.

C. About Bidston; Moreton; Raby Mere; Heswall; Ness Holt; Burton.

- R. alpinum (L.).** *Fig. 211.* Tasteless Mountain Currant. Denizen. Shrub. IV, V.

L. Planted in waste places near Burscough Abbey (D.).

- R. rubrum (L.).** *Fig. 212.* Red Currant. Denizen. Shrub. IV, V.

a. sativum (Reichb.).

Hedges, &c. Occasional, and always as an escape from cultivation.

C. Heswall; Dibbinsdale (Dr. G.).

- R. nigrum (L.).** *Fig. 213.* Black Currant. Denizen. Shrub. IV, V.

Hedges, &c., generally near houses. Occasional, and always as an escape from cultivation.

C. Heath Lane, Stoke (Dr. G.).

CRASSULACEÆ.

Cotyledon (L.). Navelwort.

- C. umbilicus (L.).** *Fig. 214.* Navelwort. Native. P. VI-VIII.

On old walls, stony hedge banks, &c. Occasional. More frequent in the Cheshire than the Lancashire portion of the district.

L. About Aughton (D.). Speke (J.H.L.).

C. Lanes about Poulton; between Egremont and New Brighton (H.). Higher Tranmere; Walls at Noctorum Farm (D.). 1875, Lane leading E. from Little Neston; 1876, about Thurstanston; Higher Bebington; Roadside above Heswall Church; Lanes at Barnston and Storeton (R.B.). Lane between Gayton and the Windmill (F.M.W.). S. of Bidston Hill (Dr. G.).



Fig. 208. *CHRYSOSENTRUM ALTERNIFOLIUM.*



Fig. 209. *PARNASSIA PALUSTRIS.*



Fig. 210. *RIBES GROSSULARIA.*



Fig. 211. *RIBES ALPINUM.*



Fig. 212. RIBES RUBRUM.



Fig. 213. RIBES NIGRUM.



Fig. 214. COTYLEDON UMBILICUS.



Fig. 215. SEDUM TELEPHIUM.



Fig. 216. SEDUM ANGLICUM.



Fig. 217. SEDUM ACRE.



Fig. 218. *SEMPERVIVUM TECTORUM.*

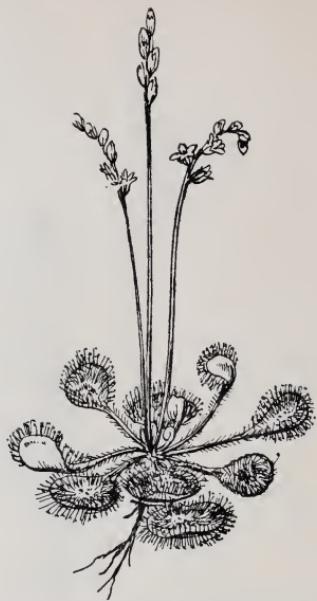


Fig. 219. *DROSERA ROTUNDIFOLIA.*



Fig. 220. *DROSERA ANGLICA.*



Fig. 221. *DROSERA INTERMEDIA.*

Sedum (L.). Stonecrop.

S. Telephium (L.). *Fig. 215.* Orpine or Live-long. Native. P. VII, VIII.

a. *purpurascens* (Koch).

Hedgebanks and the borders of fields. Occasional.

L. By the fieldsides between Club Moor and Norris Green, West Derby (D.). 1866, Lane N.E. of Walton Church; Hedgebank just beyond Fazakerley Station (w.h.).

C. Oxton; Lane between Tranmere and Prenton (H.). Overton Hills (J.F.R.). About Heswall (Mrs. S.B.). Lane near Prenton, leading toward Woodchurch; 1875, Lane between Gayton and Heswall; between Little Neston and Denhall Colliery; between Little Neston and the Chester Road; 1878, Lane by the Hill Houses, West Kirby (R.B.). Cop just S. of West Kirby Park Station (E.D.). Lane between Gayton and the Windmill; Lane between Caldy and West Kirby (F.M.W.).

S. anglicum (Huds.). *Fig. 216.* White English Stonecrop. Native. P. VII, VIII.

Rocks and dry sandy ground near the sea. Rare and local.

C. About Grange and West Kirby, and extending to Parkgate (D.). Burton Point (R.B.). Side of road, quarter mile W. of Burton (Lord de T.; F.M.W.). Caldy; Heswall (Dr. G.).

S. acre (L.). *Fig. 217.* Bitting Yellow Stonecrop. Native. P. VI-VIII.

Sandhills, very common. Banks and walls inland, frequent.

S. reflexum (L.). Yellow Stonecrop. Alien. P. VI, VII.

On walls and roofs. Very rare, and planted.

Sempervivum (L.). House-leek.

S. tectorum (L.). *Fig. 218.* House-leek. Alien. P. VII.

On walls and roofs. Occasional, and planted.

C. Saughall Massie; Raby; Frankby; Irby; N. of Meols; Ness; Burton; &c. (Dr. G.).

DROSERACEÆ.*Drosera (L.). Sundew.*

D. rotundifolia (L.). *Fig. 219.* Round-leaved Sundew. Native. P. VII, VIII.

Wet heathy places, decreasing as drainage progresses. Local.

L. Hollows among the sandhills at Formby.

C. Oxton Heath; Heswall; Thurstanston.

D. anglica (*Huds.*). *Fig. 220.* Long-leaved Sundew. Native. P. VII, VIII.

The mosses in Lancashire. Local.

D. intermedia (*Hayne*). *Fig. 221.* Little Sundew. Native. P. VII, VIII.

Wet heathy places. Local.

L. Simmonswood and Rainford Mosses.

C. 1894, Thurstanston.

HALORAGEÆ.

Hippuris (*L.*). Mare's Tail.

H. vulgaris (*L.*). *Fig. 222.* Mare's Tail. Native. P. VI-VIII.

Ditches and marshes, generally near the coast. Locally frequent.

L. Inland; Crosby to Birkdale.

C. Bidston Marsh, and thence to Meols.

Myriophyllum (*L.*). Water Milfoil.

M. verticillatum (*L.*). *Fig. 223.* Whorled Water Milfoil. Native. P. VII, VIII.

Ponds and ditches. Rare.

L. 1876, Ditches in Headbolt Lane, between Ainsdale and Formby Hall; about Altcar, and between Lydiate Station and the R. Alt (R.B.); about Altcar in 1900 (Dr. G.).

M. spicatum (*L.*). *Fig. 224.* Spiked Water Milfoil. Native. P. VI, VII.

Ponds and ditches. Frequent.

C. Birkenhead Park Lake; Leasowe; Meols Pond; Langfields; S. U. Canal (Dr. G.).

M. alterniflorum (*D. C.*). *Fig. 225.* Alternate Flowered Water Milfoil. Native. P. VII, VIII.

Ponds and ditches. Occasional.

L. Ditches and ponds at Southport (D.). Bold Bridge Farm (H.S.F.).

C. Pond near New Brighton (H.S.F.). Ponds near Lower Bebington; on the road to Parkgate; near Queensferry (J.S.). Ditch at Frodsham (J.F.R.). Pond on Hilbre (Miss C. G.). Pond off Holm Lane, Oxton (F.M.W.). Pond off the road half a mile S. of Hadlow Road Station (R.B.). 1894, near Prenton; Raby; The Langfields, West Kirby (Dr. G.).

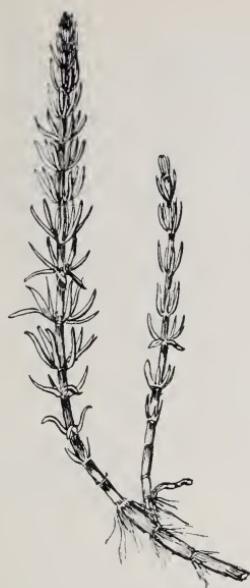


Fig. 222. *HIPPURIS VULGARIS.*



Fig. 223. *MYRIOPHYLLUM VERTICILLATUM.*



Fig. 224. *MYRIOPHYLLUM SPICATUM.*



Fig. 225. *MYRIOPHYLLUM ALTERNIFLORUM.*

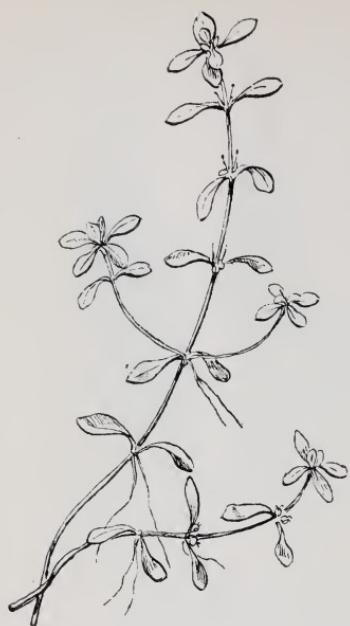


Fig. 226. CALLITRICE STAGNALIS.



Fig. 227. CALLITRICE HAMULATA.



Fig. 228. LYTHRUM SALICARIA.



Fig. 229. PEPLIS PORTULA.

Callitricha (*L.*). Water Starwort.

C. stagnalis (*Scop.*). *Fig. 226.* Large-fruited Water Starwort. Native. P. IV-IX.

Ponds and ditches. Frequent.

C. hamulata (*Kuetz.*). *Fig. 227.* Hooked Water Starwort. Native. P. VI-VIII.

Ponds and ditches. Frequent.

C. Stream below Raby Mere.

b. pedunculata (*D. C.*). Frequent.

LYTHRARIEÆ.

Lythrum (*L.*). Loosestrife.

L. Salicaria (*L.*). *Fig. 228.* Purple Loosestrife. Native. P. VII, VIII.

In wet places. Frequent.

Pepnis (*L.*). Water Purslane.

P. Portula (*L.*). *Fig. 229.* Water Purslane. Native. A. VII, VIII.

In wet places. Occasional.

C. Thurstanston; S. of Hadlow Road Station.

ONAGRARIEÆ.

Epilobium (*L.*). Willow Herb.

E. angustifolium (*L.*). *Fig. 230.* Rose Bay, or Flowering Willow. (?) Native. P. VII, VIII.

In damp places. Very rare.

L. Kirkby Moss (*D.*). Near Ormskirk (r.w.). 1893, Formby Sandhills.

C. Wood between Childer Thornton Church and Hooton Hall Racing Stables, probably planted (*R.B.*).

b. brachycarpum (*Leight.*).

The cultivated form, probably as an escape from cultivation.

C. 1867, Helsby, on a claybank (*J.F.R.*). 1880 to 1901, Grange Hill, just above the Hill Houses (*R.B.*). 1893, near Prenton (*W. H. Holt*). Storeton Hill; 1901, Raby Lane, near Hooton Station (*Dr. G.*).

E. hirsutum (*L.*). *Fig. 231.* Great Hairy Willow Herb. Native. P. VII, VIII.

In wet places. Common.

E. parviflorum (*Schreb.*). *Fig. 232.* Small-flowered Willow Herb. Native. P. VII, VIII.

In watery places. Frequent.

C. Langfields, West Kirby; Canal bank below Backford.

E. montanum (*L.*). *Fig. 233.* Broad-leaved Willow Herb. Native. P. VII, VIII.

Hedge banks, &c., and as a weed in gardens. Common.

E. tetragonum (*L.*). Long-podded, Square-stalked Willow Herb. Native. P. VII, VIII.

In damp places. Rare.

L. Railway bank by the bridge, close to Roby Station (F.M.W.).

C. 1875, on left side of the road, about quarter of a mile from the old Ferry House, Parkgate, towards Leighton Hall (F.M.W.). 1901, careful search failed to find it here (Dr. G.).

E. obscurum (*Schreb.*). *Fig. 234.* Native. P. VII, VIII.

In wet places. Occasional.

C. Railway cutting between Neston and Willaston; Overpool (Dr. G.). Newton-cum-Larton.

E. palustre (*L.*). *Fig. 235.* Narrow-leaved Marsh Willow Herb. Native. P. VII, VIII.

In wet places. Occasional.

L. Barton; Altcar; &c.

C. Pond between Bidston and Upton; Ditches about Bebington; near Raby Mere; Hooton Station; Mollington; Backford; Stoke; S. U. Canal (Dr. G.).

Authority for Epilobium, E. S. Marshall.

Enothera (*L.*).

Enothera biennis (*L.*). *Fig. 236.* Evening Primrose. B. VII-IX.

Native in Lancashire. Escaped from cultivation in Cheshire. The sandhills. Local.

L. The sandhills at various places from Crosby to Southport, especially about Formby (H.). It has spread chiefly along the L. and Y. Railway line.

C. Sandy fields near Leasowe Castle (F.M.W.). 1892, E. side of Grange Hill; near Wallasey; waste ground at West Kirby; 1901, waste ground about Bidston Junction (Dr. G.).

Circaeà (*L.*).

C. lutetiana (*L.*). *Fig. 237.* Enchanter's Nightshade. Native. P. VII, VIII.

In damp, shady places. Occasional.



Fig. 230. *EPILOBIUM ANGUSTIFOLIUM.*



Fig. 231. *EPILOBIUM HIRSUTUM.*



Fig. 232.
EPILOBIUM PARVIFLORUM.



Fig. 233.
EPILOBIUM MONTANUM.



Fig. 234.
EPILOBIUM OBSCURUM.



Fig. 235. *EPILOBIUM PALUSTRE.*



Fig. 236. *ŒNOTHERA BIENNIS.*



Fig. 237. *CIRCÆA LUTETIANA.*



Fig. 238. *BRYONIA DIOICA.*

L. Croxteth Woods; about the Old Hut, Hale; Bath Wood, and Sayer's Wood, near Ormskirk (D.).

C. Eastham; &c. (D.). Rock Savage Wood, Frodsham (J.F.R.). Patrick Wood, Bromborough (J.H.L.). Near Poole Hall; Raby Mere and Dibbinsdale; Shotwick Dale (Dr. G.).

C. alpina (*L.*). Mountain Enchanter's Nightshade. Native. P. VII, VIII.

Woods in hilly districts. Very rare.

L. In shady places on Billage Beacon, near St. Helens (D.). There are no recent records.

CUCURBITACEÆ.

Bryonia (*L.*).

B. dioica (*L.*). *Fig. 238.* White Briony. Native. P. VI-IX.

In hedges. Rare.

L. Hedge on Ditton Marsh (D.), (?) extinct.

C. 1850, Hedges at Weston, near the Soapworks; 1852, near Ince (D.). Hedge at Prenton (Mrs. T. G., Junⁿ), (?) extinct.

1897, Hedges between Blacon Point and Chester; 1901, Dee Cop, one mile below Chester (Dr. G.).

UMBELLIFERÆ.

Hydrocotyle (*L.*). Pennywort.

H. vulgaris (*L.*). *Fig. 239.* Marsh Pennywort. Native. P. V-VIII.

Damp heaths and other wet places. Common.

L. Hollows among the sandhills; Ditches about Formby, Haskayne, and Barton.

C. Heaths at Oxton and Thurstaston; about Leasowe; below Raby Mere; about ponds at Capenhurst; &c.

Eryngium (*L.*). Sea Holly.

E. maritimum (*L.*). *Fig. 240.* Sea Holly. Native. P. VII, VIII.

The sandhills. Occasional.

L. At intervals between Hightown and Birkdale; 1885, one plant just above the river bank between St. Michael's and Fulwood (R.B.).

C. Sandhills at Wallasey, Leasowe, and West Kirby; Banks of the River Dee at Heswall, Parkgate, and Burton Point.

F. Sandhills about the Point of Air.

Sanicula (L.).

S. europaea (L.). *Fig. 241.* Wood Sanicle. Native. P. VI, VII.
Woods and shady places. Frequent.

L. Speke.

C. About Bromborough, Willaston, Gayton, Shotwick, Prenton, &c.

F. Mostyn to Ffynnon Groew; Holywell; Northop; Kelsterton.

Conium (L.). Hemlock.

C. maculatum (L.). *Fig. 242.* Hemlock. Native. B. VI-VIII.
Waste places, hedge banks, &c. Occasional.

L. Southport; Croxteth Woods (D.). Canal bank near Lydiate; Roadside at Hightown and Formby; Lane leading N. from Victoria Road, Crosby; Waste ground between Altcar and Lydiate (R.B.). Aintree (J.A.W.).

C. Ellesmere Port; near Saughall Massie (D.). Near Love Lane, Wallasey; about Bidston, thence to Moreton; Caldy Hill (F.M.W.). Hedge bank between Neston and Leighton. Helsby Hill and Netherton (J.F.R.). Roadside, half a mile beyond the stone bridge near the College, Chester, towards Little Saughall; in two places at Backford; between Water Lane, Ince, and Holme House and W. of Manley (R.B.). Newton-cum-Larton; Ness; Field W. of Burton Churchyard; Lane to "Westwood," Noctorum (Dr. G.).

Smyrnium (L.). Alexanders.

S. olusatrum (L.). *Fig. 243.* Alexanders. Native. B. or P. V, VI.
Waste places and woods. Occasional.

C. Lane between Moreton and Leasowe (D.) Field near West Kirby Church (Miss C.G.). 1877, small coppice on N. slope of Grange Hill—there in 1901; 1883, rocky side of the road above Heswall Church; Lane leading from the Hill Houses towards the railway at West Kirby (R.B.). 1875, Lane at Ness, above Denhall (E.D.). 1880 and 1897, about Wallasey; 1901, corner of lane to Saughall Massie from Carr (Dr. G.).

Bupleurum (L.). Hare's-ear.

B. rotundifolium (L.). *Fig. 244.* Hare's-ear. Casual. A. VI, VII.
Rubbish heaps near the canal and docks. Very rare.

L. 1901, Canal banks below the race course, near Aintree (J.A.W.).

C. Ballast about the Birkenhead Docks.



Fig. 239. HYDROCOTYLE VULGARIS.



Fig. 240. ERYNGIUM MARITIMUM.



Fig. 241. SANICULA EUROPÆA.



Fig. 242. *CONIUM MACULATUM*



Fig. 243. *SMYRNIUM OLUSATRUM*.



Fig. 244. *BUPLEURUM ROTUNDIFOLIUM*.



Fig. 245. *BUPLEURUM TENUISSIMUM*.



Fig. 246. *APIUM GRAVEOLENS.*



Fig. 247. *APIUM NODIFLORUM.*



Fig. 248. *APIUM INUNDATUM.*



Fig. 249. *CICUTA VIROSA.*



Fig. 250. AMMI MAJUS.



Fig. 251. CARUM CARUI.



Fig. 252. SISON AMOMUM.



Fig. 253. SIUM ERECTUM.

- B. tenuissimum** (*L.*). *Fig. 245.* Slender Hare's-ear. (?) Native. A. VII, VIII.

Waste places near the sea. Very rare.

C. By Bromborough Pool (*Miss C. G.*)—destroyed by Port Sunlight works.

F. Banks of the River Dee, below Queensferry (D.).

***Apium* (*L.*).**

- A. graveolens** (*L.*). *Fig. 246.* Wild Celery. Native. P. VII-IX.

Marshes and ditches near the sea. Frequent.

L. Hightown; Birkdale; Hale; Dungeon; Garston.

C. Bromborough Pool; Shotwick; Bidston Ford; Leasowe; Newton-cum-Larton.

F. Greenfield; E. Cop of River Dee, from Queensferry towards Chester.

- A. nodiflorum** (*Reichb.*). *Fig. 247.* Procumbent Water Parsnep. Native. P. VII, VIII.

(*Helosciadium nodiflorum* (*Koch.*)).

Ditches and marshy places. Common.

- A. inundatum** (*Reichb.*). *Fig. 248.* Submerged Water Parsnep. Native. P. VII, VIII.

Ponds and ditches. Occasional.

L. Formby Marsh (D.). Ormskirk (r.w.). Pond between Aintree and Ford Cemetery; Pond between Great and Little Crosby (F.M.W.). Ditches between Haskayne and Formby (R.B.).

C. Eastham (H.S.F.). West Kirby (*Miss S. B.*), Hoylake (*Miss C. G.*). Ponds on Claughton Moor, and at S.W. corner of Oxton Heath (F.M.W.). Ditch near Frodsham Score (J.F.R.). Pond by the footpath between Bromborough Station and the Village (R.B.). Bordering Bromborough Pool; near Poole Hall; Ponds between Willaston and Ness (Dr. G.).

F. Small pond just before entering Northop from Connah's Quay (R.B.).

***Cicuta* (*L.*). Water Hemlock.**

- C. virosa** (*L.*). *Fig. 249.* Water Hemlock. Native. P. VII, VIII. Margins of ponds. Very rare.

C. 1875, Pond between Dunham Heath and Long Green, and below Dunham-on-the-Hill; Banks of the S.U. Canal, where it is joined by the footpath from Mollington Station (R.B.), (?) extinct.

NOTE.—There are several localities near the above stations, but just beyond our "district."

Ammi (L.).

- A. majus** (L.). *Fig. 250.* Great Ammi. Casual. A. VI, VII.
Waste places. Very rare, and not permanent.
C. Ballast by the Birkenhead Docks (T. G.; &c.).

Carum (L.).

- C. Petroselinum** (Benth.). Parsley. A garden escape. B. VI-VIII.
Waste places. Very rare.
C. Waste ground between Oxton Heath and Bidston Road
(R.B.).

- C. Carui** (L.). *Fig. 251.* Caraway. Casual. B. VI.
Pastures. Very rare.

L. Near Mossley Hill (H.). On each side of the road from Oakvale to Roby, and on railway banks between these places (D.). 1883, a single plant on the sandhills between Formby and Freshfield (R.B.). 1901, Aintree (J.A.W.).
C. New Brighton golf links (Miss W.).

Sison (L.). Stonewort.

- S. Amomum** (L.). *Fig. 252.* Stonewort. Native. B. VIII-X.
Hedgebanks. Occasional in Lancashire; frequent in Cheshire.
C. About Upton, and between West Kirby and Newton-cum-Larton (D.). Saughall Massie (F.M.W.; Mrs. S. B.; &c.). Stoke (J.S.). About Capenhurst (F.M.W.), extending N. to Ledsham and at intervals S. to Mollington; just after crossing the canal at Stoke towards Picton; between Alvanley and Horns Mill; between Picton and the Chester road to Frodsham high road; 1881, between Mollington Station and Backford; 1883, Shotwick; between Grange and Thurstanston (R.B.). 1875, frequent about Hapsford and Dunham-on-the-Hill (W.W.N.).
F. Near Queensferry (J.S.). Several places on the Sealand (R.B.). Blacon Point; just below Great Saughall Station (Dr. G.).

Sium (L.).

- S. erectum** (Huds.). *Fig. 253.* Water Parsnip. Native. P.
VII-IX.

(S. angustifolium (L.).)

Watery places. Frequent.

L. Freshfield.

C. Bidston Ford; Leasowe; Mollington; Denhall; Blacon Point.

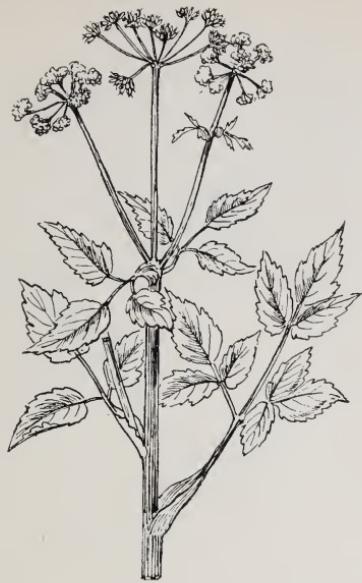


Fig. 254. *ÆGOPODIUM PODAGRARIA.*



Fig. 255. *PIMPINELLA SAXIFRAGA.*



Fig. 256. *CONOPODIUM DENUDATUM.*



Fig. 257. *MYRRHIS ODORATA.*



Fig. 258. CHÆROPHYLLUM TEMULUM.



Fig. 259. SCANDIX PECTEN-VENERIS.



Fig. 260. SCANDIX AUSTRALIS.



Fig. 261. ANTHRISCUS VULGARIS.

Ægopodium (L.). Goutweed.

- A. Podagraria (L.). Fig. 254.* Goutweed. Native. P. VI, VII.
Damp hedgebanks, plantations, often near villages. Frequent.
C. Near Woodchurch; Thornton Hough; Hooton; Shotwick; Backford; Stoke.

Pimpinella (L.). Burnet Saxifrage.

- P. Saxifraga (L.). Fig. 255.* Burnet Saxifrage. Native. P. VII-IX.

Pastures and bushy places. Frequent.

- P. major (Huds.).* Great Burnet Saxifrage. Native. P. VII, VIII.

(*P. magna (L.).*)

Banks and waysides. Very rare.

C. Near Parkgate (Lord de T.). Roadside between Alvanley Station and Horns Mill (F.M.W.; W.W.N.). There is no recent record.

Conopodium (Koch).

- C. denudatum (Koch). Fig. 256.* Earth Nut. Native. P. V.-VII.

(*Bunium flexuosum (With.).*)

In fields and open places in woods. Common.

Myrrhis (Scop.). Sweet Cicely.

- M. odorata (Scop.). Fig. 257.* Sweet Cicely. Native. P. V, VI.
Hedgebanks and waste places near Farms, probably planted ; but native by brooks near the old moss ground. Rare.
L. Lathom; Bickerstaffe; Simmonswood; near Maghull Churchyard (D.). Between Orrell Station and Billinge (Field Club). 1879. Hedgebanks between Burscough and Lathom Park; by Simmonswood Brook, between Kirkby Church and the old Mill Dam (R.B.).
C. About Prenton Village (F.M.W.), (?) extinct (Dr. G.).

Chærophylloides (L.).

- C. temulum (L.). Fig. 258.* Rough Chervil. Native. P. VI-VIII.
Hedgebanks and waste places. Common.

Scandix (L.).

- S. Pecten-Veneris (L.). Fig. 259.* Venus' Comb. Colonist.
A. VI-IX.

Cultivated fields, and on ballast about the Docks. Occasional.
L. 1884, Roadside, a short distance inland of Hightown Station (Dr. W.). 1892, Fields near Ford (J.A.W.).

C. 1875, Lane behind Parkgate; 1877, Cornfields between Willaston and the Windmill; 1877, Leighton; near Little Neston; frequently found about the Birkenhead Docks (R.B.).
 F. Cultivated fields behind Flint (R.B.).

S. australis (L.). Fig. 260

L. As a casual, 1892, in a field between Walton and Aintree (J.A.W.).

Anthriscus (Hoffm.)

A. vulgaris (Pers.). Fig. 261. Rough beaked-Parsley. Native.
 B. V, VII.

Roadsides, &c., generally near houses or the sea. Frequent.

C. Bidston; Wallasey; Irby; Grange Hill; W. of Willaston.

A. sylvestris (Hoffm.). Fig. 262. Smooth beaked-Parsley. Native.
 B. IV-VI.

Hedgebanks. Common.

Foeniculum (Hoffm.). Fennel.

F. officinale (All.). Fig. 263. Fennel. Casual in L. and C.
 Colonist in F. P. VI-IX.

Railway banks, sandhills, &c. Rare.

L. Occasionally found on the sandhills, &c.

C. Occasionally found on the sandhills. Bidston Hill; Eastham (Dr. G.).

F. Banks of the mineral railway at Greenfield, and a few plants towards Bagillt (R.B.).

Coriandrum (L.).

C. sativum (L.). Coriander. Casual. A. VI, VII.

Waste ground, and ballast about the docks. Rare, and not permanent.

Enanthe (L.). Water Dropwort.

E. fistulosa (L.). Fig. 264. Water Dropwort. Native. P.
 VI-VIII.

Ditches and Marshes. Frequent.

L. Hightown. Inland of Formby.

C. From Bidston Marsh to West Kirby; Blacon Point; Backford; Little Sutton; Irby; Ellesmere Port; &c.

E. Lachenalii (Gmel.). Fig. 265. Parsley Water Dropwort.
 Native. P. VII-IX.

Ditches and marshes near the sea. Frequent.



Fig. 262. *ANTHRISCUS SYLVESTRIS.*



Fig. 263. *FŒNICULUM VULGARE.*



Fig. 264. *Œ NAN THE FISTULOSA.*



Fig. 265. *Œ NAN THE LACHENALII.*



Fig. 266. CENANTHE CROCATA.



Fig. 267. CENANTHE PHELLANDRIUM.



Fig. 268. ÆTHUSA CYNAPIUM.



Fig. 269. SILAUS PRATENSIS.

L. Hightown.

C. Bidston Marsh: Leasowe; Hoylake; Bromborough Pool; by River Gowey, near Ellesmere Port.

NOTE.—This species is less frequent in Lancashire than Cheshire.

E. crocata (L.). *Fig. 266.* Hemlock Water Dropwort. Native. P. VI-VIII.

Ditches, &c. Frequent.

C. In the Fender and the Birket; near Parkgate.

F. Mostyn to Ffynnon Groew.

E. Phellandrium (Lam.). *Fig. 267.* Fine-leaved Water Dropwort. Native. B. or P. VII-IX.

Ponds and ditches. Occasional.

L. Ponds and ditches about Garston and Hale (D.). Ponds and ditches about Formby, Haskayne, Hightown, Lydiate, Altcar, and Ince Blundell (R.B.).

C. Bromborough (W.H.H.). Woodhouses, Frodsham (J.F.R.). Ponds between Elton Green and Thornton-le-Moors; between Ellesmere Port and Stanlow Point; near Poole Hall; about Whitby and Sutton; one mile N. E. of Backford; quarter mile W. of Mollington; about Dawpool and Caldy (F.M.W.; R.B.; Dr. G.).

***Aethusa* (L.). Fool's Parsley.**

E. Cynapium (L.). *Fig. 268.* Fool's Parsley. Native. A. VII, VIII.

Cultivated ground. Common.

C. Bidston; Parkgate; Stoke; Eastham; Bromborough Pool; &c.

F. Holywell; inland of Flint.

***Silaus* (Besser.). Sulphurwort.**

S. pratensis (Bess.). *Fig. 269.* Sulphurwort. Native. P. VII-IX.

Meadows and commons. Occasional in Cheshire.

C. Sutton (H.). Frodsham Marsh (J.F.R.). 1875, Manley; Bromborough; Ledsham; Willaston; Ness; Capenhurst; Mollington; Hooton; West Kirby to Meols; Storeton; &c. (F.M.W.; R.B.; Dr. G.).

***Angelica* (L.).**

A. sylvestris (L.). *Fig. 270.* Angelica. Native. P. VII, VIII.

By ditches and shady, watery places. Common.

C. Raby Mere; Dibbinsdale; Prenton.

F. Holywell; Whitford; inland of Flint; Queensferry.

Peucedanum (L.). Parsnep.

P. sativum (Benth.). *Fig. 271.* Parsnep. Native. B. VII, VIII.

(*Pastinaca sativa* (L.).)

Sandy ground near the sea. Frequent.

L. Crosby to Birkdale.

C. New Brighton to West Kirby.

Heracleum (L.). Cow-Parsnep.

H. Sphondylium (L.). *Fig. 272.* Cow-Parsnep. Native. P. VII, VIII.

In hedges, meadows, &c. Common.

Daucus (L.). Carrot.

D. Carota (L.). *Fig. 273.* Carrot. Native. B. VII-IX.

Dry pastures, &c. Common.

Caucalis (L.). (*Torilis*, Adans).

C. latifolia (L.). *Fig. 274.*

C. daucoides (L.). *Fig. 275.*

L. 1892, these two species are often found together as casuals in old garden ground near Walton (J.A.W.).

C. arvensis (Huds.). *Fig. 276.* Field Hedge-Parsley. Native. A. VII, VIII.

(*Torilis infesta* (Spreng.).)

Cultivated ground. Very rare.

C. Cornfield between Willaston and the Windmill; in corn-fields between Gayton and Backwood (R.B.).

C. Anthriscus (Huds.). *Fig. 277.* Upright Hedge-Parsley. Native. A. VII, VIII.

Hedgebanks and borders of fields. Frequent.

C. Saughall Massie; Willaston (Dr. G.).

F. Bagillt; Mostyn; Greenfield; inland of Flint; Queensferry (R.B.).

C. nodosa (Scop.). *Fig. 278.* Knotted Hedge-Parsley. Native. A. V-VII.

Dry banks. Occasional.

L. 1892, Fields near Orrell Village (J.A.W.).

C. Scattered in N.W. Wirral, about West Kirby, Thurstaston, and Parkgate (R.B.). Between the old Tollbar, New Ferry, and Bromborough Pool (J.W.B.). Burton; Denhall; Willaston; Grange Hill; Meols (Dr. G.).



Fig. 270 ANGELICA SYLVESTRIS.



Fig. 271. PEUCEDANUM SATIVUM.



Fig. 272. HERACLEUM SPHONDYLIUM.



Fig. 273 DAUCUS CAROTA.



Fig. 274. CAUCALIS LATIFOLIA.



Fig. 275. CAUCALIS DAUCOIDES.

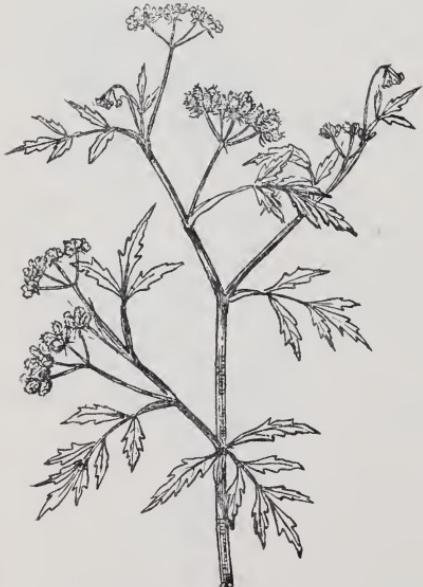


Fig. 276. CAUCALIS ARVENSIS.



Fig. 277. CAUCALIS ANTHRISCUS.



Fig. 278. *CAUCALIS NODOSA.*



Fig. 279. *HEDERA HELIX.*



Fig. 280. *CORNUS SANGUINEA.*



Fig. 281. *ADOXA MOSCHATELLINA.*



Fig. 282. *SAMBUCUS NIGRA*.

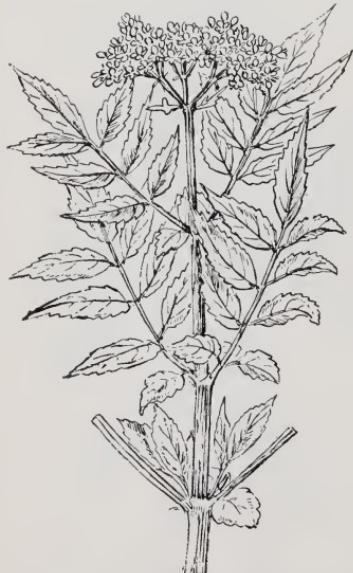


Fig. 283. *SAMBUCUS EBULUS*.



Fig. 284. *VIBURNUM OPULUS*.

ARALIACEÆ.

Hedera (L.).

- H. Helix** (L.). *Fig. 279.* Ivy. Native. Shrub. X, XI.
In woods, hedges, and on old buildings and rocks. Very common.

CORNACEÆ.

Cornus (L.). Cornel.

- C. sanguinea** (L.). *Fig. 280.* Dogwood or Cornel. Denizen. Shrub. VII.

In woods and hedges. Rare, and always planted.

L. Woods at Little Crosby (D.).

C. Near Frodsham (J.F.R.). 1875, about Mollington in several places (R.B.).

F. 1898, Wood at Blacon Point (Dr. G.).

Division III.—Corollifloræ.

CAPRIFOLIACEÆ.

Adoxa (L.).

- A. Moschatellina** (L.). *Fig. 281.* Tuberous Moschatel. Native. P. IV, V.

In moist shady places. Frequent.

L. Speke; Hunts Cross; Dungeon.

C. Bidston; Bebington; Hooton; Shotwick; Raby Mere.

Sambucus (L.).

- S. nigra** (L.). *Fig. 282.* Elder. Native. Tree. VI.

In woods and hedges. Common.

- S. Ebulus** (L.). *Fig. 283.* Danewort or Dwarf Elder. Denizen. P. VIII.

Waste ground, near houses. Very rare.

C. Hedgebank W. of Saughall Massie (D.); there in 1901 (Dr. G.). The edge of a field bordering a garden by the roadside, between Moreton and Hoylake, 1872 (F.M.W.), (?) extinct.

Viburnum (L.).

- V. *Opulus (L.). Fig. 284.* Guelder Rose. Native. Shrub. VI, VII.

Hedges and thickets. Occasional.

L. Rainhill.

C. Gillbrook; Oxton to Woodchurch; about Raby Mere, &c.; Willaston; Dawpool.

F. Blacon Point (Dr. G.).

Lonicera (L.).

- L. *Periclymenum (L.). Fig. 285.* Woodbine or Honeysuckle. Native. Shrub. VII, VIII.

In thickets, woods and hedges. Common.

Symporicarpus racemosus. Fig. 286.

The Snowball Tree is sometimes met with as an escape from cultivation.

RUBIACEÆ.

Galium (L.). Bedstraw.

- G. *Cruciata (Scop.). Fig. 287.* Crosswort Bedstraw. Native. P. V-VII.

Hedgebanks, &c. Occasional.

L. Speke (Miss R.). Between Speke and Hale (Miss C. G.).

C. About Eastham, Hooton Hall, and Sutton (D.). Weaver Valley (J.F.R.). Apparently absent from N. Wirral, though frequent on the Chester side of Eastham, as about Hooton, Ledsham, and Shotwick; Bromborough; Overpool; Stoke; Mollington (R.B.; Dr. G.).

F. The Dee Cop; Blacon Point; Great Saughall (Dr. G.).

- G. *verum (L.). Fig. 288.* Our Lady's Bedstraw. Native. P. VII, VIII.

The sandhills, very common. Inland in dry places, frequent.

- G. *saxatile (L.). Fig. 289.* Heath Bedstraw. Native. P. VI, VII. Dry heathy ground. Very common.

- G. *uliginosum (L.).* Rough Marsh Bedstraw.

Should be looked for, as it was recorded many years ago.

- G. *palustre (L.). Fig. 290.* Marsh Bedstraw. Native. P. VII, VIII.

In ditches and wet places. Frequent.

- b. *elongatum (Presl.).* } All three forms occur in the district.
c. *Witheringii (Sm.).* }



Fig. 285. *LONICERA PERICLYMENUM*.



Fig. 286. *SYMPHORICARPOS RACEMOSUS*.



Fig. 287. *GALIUM CRUCIATA*.



Fig. 288. *GALIUM VERUM.*



Fig. 289. *GALIUM SAXATILE.*

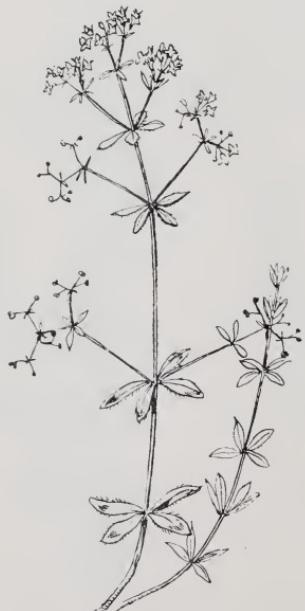


Fig. 290. *GALIUM PALUSTRE.*



Fig. 291. *GALIUM APARINE.*

b. elongatum occurs in ditches about Formby, and Bidston Marsh (F.M.W.).

c. Witheringii is equally common with the type form at Crosby, Formby, Southport (D.).

G. Aparine (*L.*). *Fig. 291.* Goose-grass or Cleavers. Native. A. VI-VIII.

In hedges and cultivated ground. Very common.

G. tricorne (*With.*). *Fig. 292.* Rough Corn Bedstraw. Casual. A. VI-IX.

L. Railway sidings W. of new dock at Garston (R.B.). Canal banks at Litherland.

C. As a ballast plant about Birkenhead Docks.

Asperula (*L.*).

A. odorata (*L.*). *Fig. 293.* Sweet Woodruff. Native or Denizen. P. V, VI.

In woods and shady places. Rare. Probably often escaped from cultivation.

C. Shotwick; Willaston; Heswall; Prenton; King's Lane, Bebington (Dr. G.).

Sherardia (*L.*).

S. arvensis (*L.*). *Fig. 294.* Field Madder. Native. A. V-VIII.

Dry fields and waste ground. Common.

C. H. Bebington; Willaston; Burton; Caldy.

VALERIANÆ.

Valeriana (*L.*).

V. dioica (*L.*). *Fig. 295.* Small Marsh Valerian. Native. P. V, VI.

Boggy places. Occasional.

L. Sefton Meadows; Meadows at Woolton; Field near Halebank Station (Miss C. G.). L. bank River Alt, near the mouth (H.E.S.).

C. 1872, by the stream below Raby Mere; 1893, Dibbinsdale (Miss W.). Langfields (Dr G.). About West Kirby (F.M.W.; Miss C. G.). Near River Weaver, near Cattenhall (J.F.R.). Peck Mill, near Dunham-on-the-Hill (R.B.).

V. officinalis (*L.*). *Fig. 296.* Great Valerian. Native. P. VI, VII.

In marshy meadows, and by the sides of ditches and ponds. Frequent.

L. Hightown; Kirkby; Sefton.

C. Peck Mill, Dunham; Bidston Ford; Spital; Dibbinsdale.

Centranthus (D. C.).

C. ruber (*D. C.*). *Fig. 297.* Red Spur Valerian. Denizen. P. VI-IX.

C. Railway between Little Sutton and Ellesmere Port (Miss W.).

Valerianella (Tournef.).

V. olitoria (*Mænch.*). *Fig. 298.* Lamb's Lettuce. Native. A. V-VII.

Sandy ground near the sea. Common. Dry banks and the borders of fields inland. Frequent.

L. Otterspool; Dungeon.

C. Storeton; Leasowe; Heswall; Willaston.

V. dentata (*Poll.*). *Fig. 299.* Narrow-fruited Lamb's Lettuce. Native. A. VI-VIII.

In cultivated fields. Occasional.

L. Hale.

C. Heswall; Parkgate; Leasowe; Willaston.

DIPSACEÆ.

Dipsacus (L.).

D. sylvestris (*L.*). *Fig. 300.* Teasel. Native. B. VII-IX.

Roadsides and hedgebanks. Occasional.

L. Banks of River Mersey, between Dingle Point and Garston (D.). River banks at Ditton and Speke.

C. Hedgebanks about Bidston, Moreton, Upton, and Saughall Massie (H.). Aston (J.F.R.). 1875, at intervals from Neston, Burton Point, Shotwick, to Great Saughall; 1876, about Heswall, Dawpool, Thurstanston; 1880, between Ince and River Gowey, and extending to Thornton (R.B.). Newton-cum-Larton.

F. Blacon Point (Dr. G.).

D. pilosus (*L.*) *Fig. 301.* Small Teasel. Casual. B. VIII.

Woods. Very rare. (?) introduced

C. 1851, Aston Wood (D.). 1867, confirmed (J.F.R.).

D. fullonum (*L.*). The Fuller's Teasel.

1897, was found as a casual on banks of River Mersey at Hale.

Scabiosa.

S. Succisa (*L.*). *Fig. 302.* Premorse Scabious. Native. P. VII-X.

Pastures and heathy ground. Frequent.



Fig. 292. *GALIUM TRICORNE*.



Fig. 293. *ASPERULA ODORATA*.



Fig. 294. *SHERARDIA ARVENSIS*.



Fig. 295. *VALERIANA DIOICA*.



Fig. 296. *VALERIANA OFFICINALIS*.



Fig. 297. *CENTRANTHUS RUBER*.



Fig. 298. *VALERIANELLA OLITORIA*.



Fig. 299. *VALERIANELLA DENTATA*.



Fig. 300. *DIPSACUS SYLVESTRIS.*



Fig. 301. *DIPSACUS PILOSUS.*



Fig. 302. *SCABIOSA SUCCISA.*



Fig. 303. *SCABIOSA ARVENSIS.*



Fig. 304. *EUPATORIUM CANNABINUM.*



Fig. 305. *SOLIDAGO VIRGAUREA.*



Fig. 306. *BELLIS PERENNIS.*



Fig. 307. *ASTER TRIPOLIUM.*

S. arvensis (L.) *Fig. 303.* Field Scabious. Native. P. VII-IX.

Cultivated fields and railway banks. Occasional.

L. Crosby (H.). Fields N. of Childwall Church; Cornfields near Aigburth, and also near Southport (D.). About Seaforth (H.S.F.). Field now included in Sefton Park (R.B.; J.H.L.).

C. Near Neston (D.). About Parkgate (F.M.W.). 1866, Godscroft, near Frodsham (J.F.R.). 1876, Fields between Thurstaston and Frankby; 1877, around Willaston (R.B.). Wallasey (Miss W.). Bidston; Heswall; Ness; Denhall; above Burton Point (Dr. G.).

COMPOSITÆ.***Eupatorium* (Tournef.).****E. cannabinum (L.)** *Fig. 304.* Hemp Agrimony. Native. P. VIII, IX.

By the sides of streams and ditches. Frequent.

L. Dungeon.

C. Langfields, West Kirby; Parkgate; Heswall; Shotwick; Irby; Landican; Oxton; Spital.

Solidago* (L.).*S. Virgaurea (L.)** *Fig. 305.* Goldenrod. Native. P. VII, IX.

Dry heathy places. Frequent.

C. Thurstaston; Eastham; Bidston; Wallasey; Barnston; Parkgate; Ness; Bromborough Pool.

Bellis* (L.).*B. perennis (L.)** *Fig. 306.* The Daisy. Native. P. III-X.

Nearly everywhere.

Aster.**A. Tripolium (L.)** *Fig. 307.* Michaelmas Daisy. Native. P. VIII, IX.

Muddy salt marshes. Common locally.

C. Bidston Marsh; West Kirby; Heswall; Parkgate; Bromborough Pool; Ellesmere Port.

Erigeron* (L.).*E. acre (L.)** *Fig. 308.* Blue Fleabane. Native. A. VII, VIII.

Dry banks. Rare. Sandhills. Frequent.

L. Formby sandhills.

C. Bidston Marsh; Railway, Neston to Willaston (Dr. G.).

F. Railway near Great Saughall (Dr. G.).

Filago (Tournef.)

F. germanica (L.). *Fig. 309.* Cudweed. (?) Native. A. VII-IX.

In dry fields and gravelly places. Rare.

C. One plant on Parkgate side of Ness (Lord de T; F.M.W.). 1883, dry pasture between the N. side of Thurstan Hill and the Frankby road (R.B.).

F. minima (Fries.). *Fig. 310.* Slender Cudweed. Native. A. VI-IX.

Dry heathy ground. Rare. Sandhills. Occasional

L. Sandhills from Formby to Birkdale.

C. Waste ground near Claughton; Heswall and Thurstan Hills. Golf Links at Hoylake (Dr. G.).

Antennaria (R. B.).

A. dioica (R. Br.). *Fig. 311.* Mountain Everlasting. Colonist. P. VI, VII.

L. 1881, Sandhills at Birkdale (Dr. G.).

NOTE.—Dr. J. W. Ellis suggests that the seeds of this plant have been carried down the River Ribble from the hills where it is known to occur. Our sandhills present a most abnormal situation in which to find this species.

Gnaphalium (L.).

G. uliginosum (L.). *Fig. 312.* Marsh Cudweed. Native. A. VII, VIII.

In wet places, especially where there has been stagnant water. Common.

G. sylvaticum (L.). *Fig. 313.* Upright Cudweed. Native. P. VII-IX.

On heathy ground. Occasional.

L. Southport; about Simmonswood; about the Stone Quarry at Knowsley (D.). Ormskirk.

C. Hills about West Kirby; Bromborough (D.). Eastham (H.S.F.). In the pleasure grounds at Bidston—(?) Vyner's; and by the edges of open plantations between Claughton and Bidston (F.M.W.). Overton (J.F.R.). 1898, Storeton Quarry; 1899, Thurstan (Dr. G.).

Inula (L.).

I. Helenium (L.). *Fig. 314.* Elecampane. Casual. P. VII, VIII.

C. 1896, several plants in a field below the road, half a mile E. of Shotwick (Dr. G.).



Fig. 308. ERIGERON ACRE.



Fig. 309. FILAGO GERMANICA.



Fig. 310. FILAGO MINIMA.



Fig. 311. ANTENNARIA DIOICA.



Fig. 312. GNAPHALIUM ULIGINOSUM.



Fig. 313. *GNAPHALIUM SYLVATICUM.*



Fig. 314. *INULA HELENIUM.*



Fig. 315. *PULICARIA DYSENTERICA.*



Fig. 316. *XANTHIUM SPINOSUM.*

Pulicaria (Gaert.).

- P. dysenterica (Gaert.).** *Fig. 315.* Fleabane. Native. P. VII-IX.
 Sides of ditches and other wet places. Frequent.
 L. Formby; mouth of River Alt; Dungeon.
 C. Parkgate to Heswall, and Leasowe to Meols.

Xanthium (L.).

- X. spinosum (L.).** *Fig. 316.* Casual.

L. 1891, has been found as a ballast plant near Bootle and Litherland (J.A.W.).

Bidens (L.).

- B. cernua (L.).** *Fig. 317.* Nodding Bur-marigold. Native. A. VIII, IX.

Watery places. Occasional.

L. Haskayne; Crosby.

C. Leasowe; Storeton Road. Oxton; Bromborough; S. of Hadlow Road Station; near Overpool; near Capenhurst (Dr. G.).

- b. radiata (Sond.).*

Is occasionally met with between Formby and Haskayne.

- B. tripartita (L.).** *Fig. 318.* Tripartite Bur-marigold. Native. A. VIII, IX.

Margins of pools, &c. Frequent.

L. Dungeon; Crosby; Haskayne; Formby; Altcar; Lydiate.

C. Leasowe; Meols; Newton; Oxton; West Kirby; Parkgate; Mollington.

- Galinsoga parviflora (Cav.).** *Fig. 319.*

L. 1892, was found as a casual at Crosby (J.M.).

This plant is a native of Peru, and is naturalised at Kew.

Achillea (L.).

- A. Millefolium (L.).** *Fig. 320.* Milfoil or Yarrow. Native. P. VII-IX.

Pastures, waysides, &c. Very common.

- A. Ptarmica (L.).** *Fig. 321.* Sneezewort. Native. P. VIII, IX.

In pastures and by roadsides, &c. Common.

L. Between Formby and Haskayne; Dungeon.

C. N. end Birkenhead; Oxton; Meols; Langfields; Thurstanston; Willaston; Mollington; Hooton Station; New Ferry; Barnston.

Anthemis (L.).

- A. *tinctoria* (L.). *Fig. 322.* Yellow Camomile. Alien. (?) B. VII, VIII.
 L. 1897, on road-cop of lane leading seawards from Formby Station (Dr. G.).
- A. *Cotula* (L.). *Fig. 323.* Stinking Mayweed. Native. A. VII-IX.
 In cultivated ground and by waysides. Frequent.
 C. Birkenhead road to Hoylake.
- A. *arvensis* (L.). Corn Camomile. Casual. A. VII-IX.
 By roadsides. Very rare.
 C. Roadside between Thornton Hough and Parkgate (D.).
 NOTE.—Occasionally appears as a ballast plant (R.B.).
- A. *nobilis* (L.). *Fig. 324.* True Camomile. Native. P. VII-IX.
 On commons. Very rare.
 L. Parr Flat, by the side of a pathway leading to Sutton Moss (D.), (?) extinct.

Chrysanthemum (L.).

- C. *segetum* (L.). *Fig. 325.* Corn Marigold. Native. A. VII-IX.
 In cultivated fields, particularly of turnips and potatoes. Occasional.
 L. Crosby; Kirkby.
 C. Willaston; Ness; Heswall; Meols; Little Sutton.
- C. *Leucanthemum* (L.). *Fig. 326.* Ox-Eye-Daisy or Marguerite.
 Native. P. VI, VII.
 In pastures and waste places. Very common.
- C. *Parthenium* (Pers.). *Fig. 327.* Feverfew. Denizen. P. VII-IX.
 In waste places, generally near houses. Occasional. Always an escape from cultivation.
 L. In a large quarry at Roby it is very abundant.
 C. Birkenhead; Wallasey; Caldy; Burton (Dr. G.).

Matricaria (L.).

- M. *inodora* (L.). *Fig. 328.* Scentless Mayweed. Native. A. or B. VII, VIII.
 Cultivated fields and waste places. Common.
- b. *salina* (Bab.). Seaside Mayweed.
 On rocks and among shingle by the sea. Local. Appears at intervals along the coast and estuaries of the Dee and Mersey. It is specially luxuriant about the rocks at Hilbre.



Fig. 317. *BIDENS CERNUA*.



Fig. 318. *BIDENS TRIPARTITA*.



Fig. 319. *GALINSOGA PARVIFLORA*.



Fig. 320. *ACHILLEA MILLEFOLIUM*.



Fig. 321.
ACHILLEA PTARMICA.



Fig. 322.
ANTHEMIS TINTORIA.



Fig. 323.
ANTHEMIS COTULA.



Fig. 324. ANTHEMIS NOBILIS.



Fig. 325. CHRYSANTHEMUM SEGETUM.

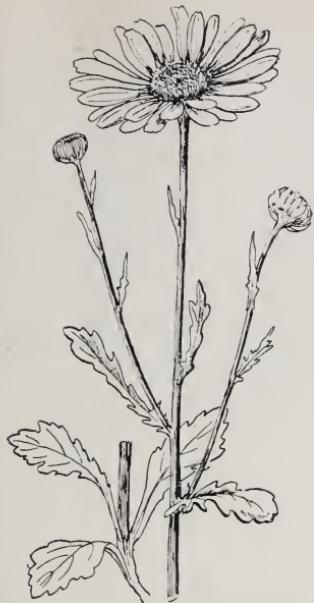


Fig. 326. *CHRYSANTHEMUM LEUCANTHEMUM.*



Fig. 327. *CHRYSANTHEMUM PARTHENIUM.*

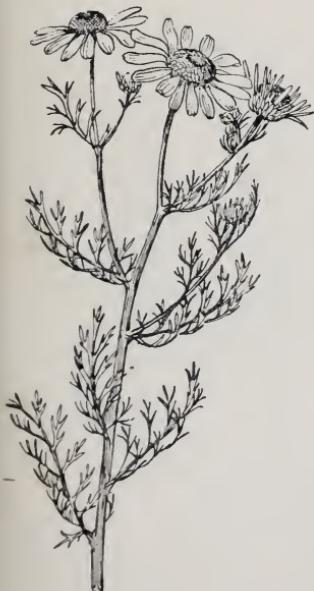


Fig. 328.
MATRICARIA INODORA.



Fig. 329.
MATRICARIA CHAMOMILLA



Fig. 330.
MATRICARIA DISCOIDEA.



Fig. 331. *TANACETUM VULGARE.*



Fig. 332. *ARTEMISIA ABSINTHIUM.*



Fig. 333. *ARTEMISIA VULGARIS.*



Fig. 334. *ARTEMISIA MARITIMA.*

M. Chamomilla (L.). *Fig. 329.* Wild Camomile. Native. A. VII-IX.

Cultivated and waste ground. Occasional.

C. Little Storeton; Newton-cum-Larton; West Kirby (Dr. G.).

M. discoidea (L.). *Fig. 330.*

1900, was found as a casual on waste ground at Birkenhead (J.A.W.).

Tanacetum (L.).

T. vulgare (L.). *Fig. 331.* Tansy. Native. P. VII-IX.

In hedge banks and by roadsides, &c. Occasional.

L. Gill Moss, N. side of Croxteth Park (D.). About Hightown; Formby; Sefton; Maghull; Garston (F.M.W.; R.B.).

C. Clay banks of River Dee, Caldy to Parkgate; Flaybrick Hill (F.M.W.). By-path from Parkgate to Leighton; Neston; Prenton (R.B.). Frodsham Marshes (J.F.R.). The Arno, Oxton; West Kirby; Heswall; Thornton Hough; Little Sutton (Dr. G.).

NOTE.—Native in many localities in L. and C. Sometimes only a colonist.

Artemisia (L.).

A. Absinthium (L.). *Fig. 332.* Wormwood. Native or Denizen. P. VIII, IX.

In waste places and by roadsides. Occasional. Often an escape from cottage gardens.

C. Bromborough Pool (F.P.M.). Wallasey; Meols; Hoylake; West Kirby; Newton; Neston; Burton (Dr. G.).

A. vulgaris (L.). *Fig. 333.* Mugwort. Native. P. VIII, IX.

On hedge banks, roadsides, and waste places. Common.

A. maritima (L.). *Fig. 334.* Sea Wormwood. Native. P. VIII-X.

In salt marshes and ditches by the sea. Rare; local.

C. By Bromborough Pool, below Sunlight Soap Works—part of this ground is now (1900) built over (Dr. G.).

Tussilago (L.).

T. Farfara (L.). *Fig. 335.* Coltsfoot. Native. P. III-V.

Clay banks, fields, and waste places. Very Common.

Petasites (Tournef.).

P. fragrans (Presl.). Sweet Scented Coltsfoot, or Winter Heliotrope. Denizen. P. XII-XIV.

Doubtless it was originally an outcast from gardens.

L. Near a lane leading from Druid's Cross towards the Woolton Road; by the roadside through Ince Blundell Woods (R.B.).

C. In an old quarry W. of Caldy; 1902, Roadside opposite Frankby Church, and in adjoining field (Dr. G.).

P. vulgaris (*Desf.*). *Fig. 336.* Butterbur. Native. P. IV.

In wet places. Rare.

L. Bank of River Mersey opposite Speke Hall; Halebank near the Station (Miss C.G.). 1885, Plantation by roadside, one mile W. of Ashton-in-Makerfield (R.B.).

C. About Frodsham; opposite Horns Mill, between Dunham-on-the-Hill and Helsby (F.M.W.; W.W.N.). 1899, Helsby Railway Station, in waste ground (Field Club).

P. albus. Casual.

F. Near Flint (R.B.).

***Doronicum* (*L.*).**

D. Pardalianches (*L.*). *Fig. 337.* Great Leopard's Bane. Denizen. P. V-VII.

In woods, &c. Rare.

L. In Moor Hall Park and near the Lodge, about one mile E. of Town Green Railway Station.

***Senecio* (*L.*). Ragwort.**

S. vulgaris (*L.*). Groundsel. Native. A. I-XII.

In cultivated and waste grounds, &c. Very common.

b. radiatus (*Koch*).

Wallasey sandhills.

S. sylvaticus (*L.*). *Fig. 338.* Mountain Groundsel. Native. A. VII-IX.

Dry hedge banks, walls, heaths, &c. Common.

S. viscosus (*L.*). *Fig. 339.* Stinking or Viscid Groundsel. Casual. A. VII-IX.

Waste sandy ground. Very rare.

C. 1890, by the Birkenhead Docks (R.B.). 1898, Banks of the Ship Canal, opposite Hooton Park (Dr. G.).

S. erucifolius (*L.*). *Fig. 340.* Hoary Ragwort. Native. P. VII, VIII.

Roadsides, and about the borders of fields and woods. Frequent.

C. Woodchurch; Saughall Massie; Moreton to Hoylake; Blacon

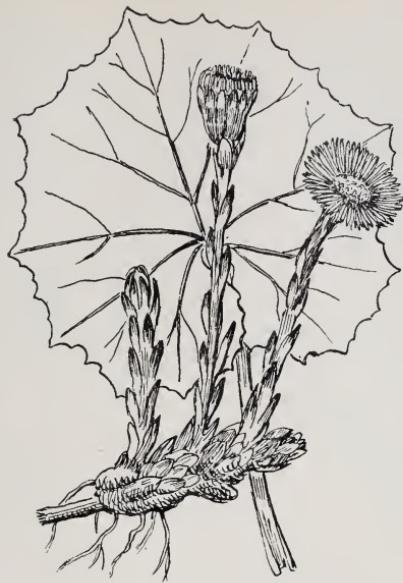


Fig. 335. *TUSSILAGO FARFARA.*



Fig. 336. *PETASITES VULGARIS.*



Fig. 337. *DORONICUM PARDALIANCHES.*



Fig. 338. *SENECIO SYLVATICUS.*



Fig. 339. *SENECIO VISCOsus.*

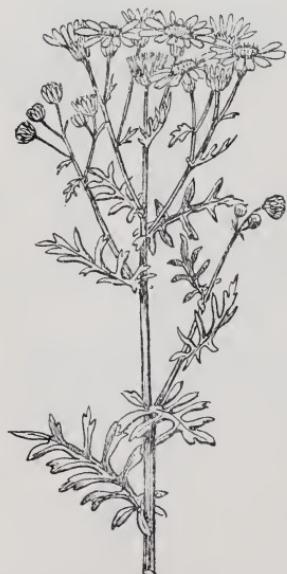


Fig. 340. *SENECIO ERUCIFOLIUS.*

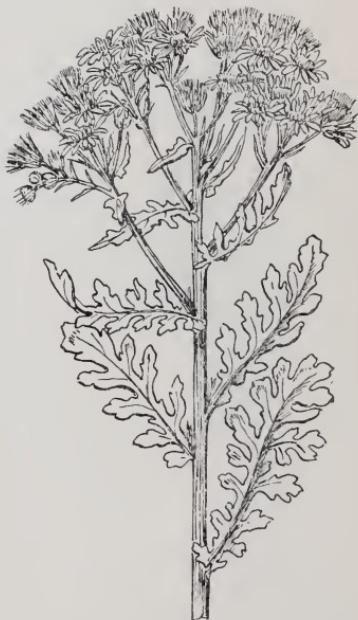


Fig. 341. *SENECIO JACOBÆA.*



Fig. 342. *SENECIO AQUATICUS.*



Fig. 343. *CARLINA VULGARIS.*



Fig. 344. *ARCTIUM MINUS.*



Fig. 345. *CARDUUS PYCNOCEPHALUS.*



V Fig. 346. *CARDUUS NUTANS.*

Cha ford



Fig. 347. *CARDUUS CRISPUS.*
c. *ACANTHOIDES.*



Fig. 348. *CNICUS LANCEOLATUS.*



Fig. 349. *CNICUS PALUSTRIS.*

S. Jacobaea (L.). *Fig. 341.* Common Ragwort. Native. P. VII-IX.

In pastures, waste ground, and on the sandhills. Very common.

S. aquaticus (L.). *Fig. 342.* Marsh Ragwort. Native. P. VII, VIII.

In marshy places. Common.

Carlina (L.).

C. vulgaris (L.). *Fig. 343.* Carline Thistle. Native. B. VII-IX. The sandhills on both sides of the Mersey. Frequent in L. Rare in C.

Arctium.

A. minus (Schk.). *Fig. 344.* Lesser Burdock. Native. B. VII-IX.

Woods, hedge banks, waste places, &c. Frequent.

C. Wallasey; Prenton; Newton; Caldy, and Dee side generally; Overpool; Stoke.

NOTE.—Further research will probably shew the presence of A. intermedium (Lange) in C.

Carduus (L.).

C. pycnocephalus (Jacq.). *Fig. 345.* Slender-flowered Thistle. Native. A. or B. VII, VIII.

(*C. tenuiflorus*).

In sandy ground near the sea. Frequent.

C. Dee side from West Kirby to Burton; Shotwick (Dr G.).

C. nutans (L.). *Fig. 346.* Musk Thistle. Colonist. A. or B. VI-VIII.

Dry fields and banks. Rare.

C. 1873, in a gravel pit half a mile W. of Denhall (Lord de T.; F.M.W.). 1874 to 1895, in a field half a mile N. of Willaston Windmill (R.B.; Dr. G.).

C. crispus (L.). Welted Thistle. Native. B. VII-IX.

Rare off limestone, and consequently rare in our district.

c. acanthoides (L.). *Fig. 347.*

C. Fifty yards E. of Moston Bridge by a trench which runs parallel to the canal at Mollington (Lord de T.). 1857, by River Weaver (Rev. H.). Burton (A.K.B.). By S. U. Canal at Backford; Burton Point (Dr. G.).

Cnicus (Hoffm.).

- C. lanceolatus (Hoffm.).** *Fig. 348.* Spear Thistle. Native. B. VII, VIII.

In poor ground in many places. Very common.

- C. palustris (Hoffm.).** *Fig. 349.* Marsh Plume Thistle. Native. A. or B. VII-IX.

In moist meadows and by the sides of ditches. Very common.

- C. acaulis (L.).** Dwarf Thistle. Colonist. P. VII, VIII. }
In pastures. Very rare.
C. In a field on Overton Hills near Frodsham (J.F.R.). }
This needs confirmation.

- C. arvensis (Hoffm.).** *Fig. 350.* Creeping Plume Thistle. Native. P. VII-IX.

In fields and by roadsides. Very common.

- b. mitis (Koch), and d. setosus (Bess.).*

1901, about the Canal banks at Aintree (J.A.W.).

Onopordon (L.).

- O. Acanthium (L.).** *Fig. 351.* Scotch Thistle. Casual. B. VIII.
Dry banks and fields. Rare.

C. West Kirby (H.). About Saughall Massie (D.). 1883,
Sparingly scattered about Meols and Hoylake (R.B.); con-
firmed, 1901 (Dr. G.).

Silybum (Gaert.).

- S. Marianum (Gaert.).** *Fig. 352.* Milk Thistle. Casual. B. VI, VII.

Waste ground and rubbish heaps. Very rare.

L. Near Southport.

C. Near Birkenhead.

Serratula (L.).

- S. tinctoria (L.).** *Fig. 353.* Sawwort. Native. P. VII-IX.

In woody and bushy places. Rare.

L. In moist wooded parts of Otterspool, near the water (H.),
(?) extinct. 1890, the Dingle (R.B.).

C. Hedge bank by footpath from near Storeton Quarry
towards Higher Tranmere, 1875-6 (R.B.). Repeated search
has failed to find it, 1898 (Dr. G.).

Centaurea (L.). Knapweed.

- C. nigra (L.).** *Fig. 354.* Black Knapweed. Native. P. VII-IX.
Pastures, banks and roadsides. Very common.



Fig. 350. *CNICUS ARVENSIS.*



Fig. 351. *ONOPORDON ACANTHUM.*



Fig. 352. *SILYBUM MARIANUM.*



Fig. 353. *SERRATULA TINCTORIA.*



Fig. 354. *CENTAUREA NIGRA*.



Fig. 355. *CENTAUREA SCABIOSA*.



Fig. 356. *CENTAUREA CYANUS*.



Fig. 357. *CENTAUREA CALCITRAPA*.

C. Scabiosa (L.). Fig. 355. Greater Knapweed. Native. P. VII-IX.

Borders of fields, &c., on dry soil. Rare.

L. Roadside, one mile N.E. of Ormskirk by railway to Rainford (R.B.).

C. Wallasey: on Hose side (Miss W.); Railway bank, S. of the Railway Station (A.K.B.); Field near the Church (D.). S. slope of Bidston Hill (Dr. G.). One root on hedge bank between Raby and Upland House, towards Neston; 1880, Railway bank between Ellesmere Port and River Gowey (R.B.).

C. Cyanus (L.). Fig. 356. Corn Bluebottle. Casual. A. VI, VII. Sandy fields. Rare.

L. Cornfield half-mile N. of Kirkby Railway Station (Miss W.). Field W. of Maghull Church; Field E. of Sefton Railway Station (R.B.). Waste ground by the W. dock at Garston (R.D.B.).

C. Meols; Irby Hill (Dr. G.).

C. Calcitrapa (L.). Fig. 357. Star Thistle or Caltrops. Casual. A. VII, VIII.

Ballast heaps near Birkenhead Docks (R.B.).

C. solstitialis (L.). Fig. 358. Yellow Star Thistle. Casual. A. VII-IX.

L. 1892, near Seven Pits, and Black Bull Lane, Walton (J.A.W.).

C. Ballast heaps near Birkenhead Docks (R.B.).

C. melitensis (L.).

C. 1890, Grange, West Kirby (R.B.). 1892, as a casual at Birkenhead (J.A.W.).

Cichorium (L.).

C. Intybus (L.). Fig. 359. Chicory or Succory. Denizen. P. VII, VIII.

By roadsides, in fields and waste places, &c. Rare, and not permanent.

L. In a field near the sandhills at Crosby; Southport; in a field near the railway at Roby; between Aintree and Maghull (D.). Between Hightown and Formby; Garston, on a slope to the sea shore (T.G.).

C. Little Sutton (H.). 1884, Cornfield below the Windmill at Wallasey (R.B.). 1890, where the path from Wallasey to Bidston crosses the Hoylake railway. 1900, Field on E. slope of Storeton Hill (Dr. G.).

NOTE.—Chicory Farm, on the Scarisbrick Road, Southport, is responsible for the plants found in that district.

Lapsana (L.).

L. communis (L.). *Fig. 360.* Nipplewort. Native. A. VII, VIII.
By roadsides in waste places and cultivated land. Common.

Picris (L.). (*Helminthia* (Juss.).)

P. echoides (L.). *Fig. 361.* Bristly Ox-tongue. Native. A. or B.
VII, VIII.

By roadsides and in waste places, generally on clay. Occasional.

L. At Aigburth on the shore, extending to Speke; Walton (D.).

C. Edge of Bromborough Pool (H.). Roadsides about Bidston, Upton, Saughall Massie, Hoylake, and West Kirby, all down the Birkenhead road (D.). Dawpool (Dr. G.).

F. Blacon (Dr. G.).

Crepis (L.).

C. setosa (Hall, fil.). Casual. A. VII, VIII.

L. 1859, among a seed-sown crop in a field at Netherton (H.S.F.).

C. virens (L.). *Fig. 362.* Smooth Hawksbeard. Native. A. or B.
VI-IX.

In both waste and cultivated ground. Common.

NOTE.—This species assumes a great variety of forms.

C. paludosa (Moench). *Fig. 363.* Marsh Hawksbeard. Native.
P. VII-IX.

In damp places. Very rare.

L. Bathwood; Ormskirk (T.W.); requires recent confirmation.

C. Near Parkgate (D.); requires recent confirmation.

F. 1894, Nant-y-Flint (R.B.).

Hieracium (L.).

H. pilosella (L.). *Fig. 364.* Mouse-ear Hawkweed. Native. P.
V-VIII.

Dry banks and pastures. Very common.

H. vulgatum (Fries.). *Fig. 365.* Wood Hawkweed. Native. P.
VII, VIII.

Bushy places, hedge banks, &c. Locally common.

C. Oxton; Willaston; Little Neston (Dr. G.).



Fig. 358. *CENTAUREA SOLSTITIALIS*.



Fig. 359. *CICHORIUM INTYBUS*.



Fig. 360. *LAPSANA COMMUNIS*.



Fig. 361. *PICRIS ECHIOIDES*.



Fig. 362. *CREPIS VIRENS*.



Fig. 363. *CREPIS PALUDOSA*.



Fig. 364. *HIERACIUM PILOSELLA*.



Fig. 365. *HIERACIUM VULGATUM*.



Fig. 366.

HIERACIUM UMBELLATUM.



Fig. 367.

HIERACIUM BOREALE.

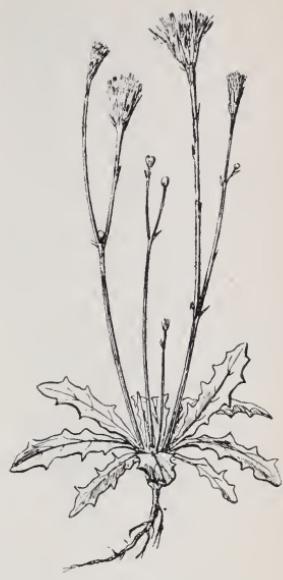


Fig. 368.

HYPOCHÆRIS GLABRA.



Fig. 369. HYPOCHÆRIS RADICATA.



Fig. 370. LEONTODON HIRTUS.

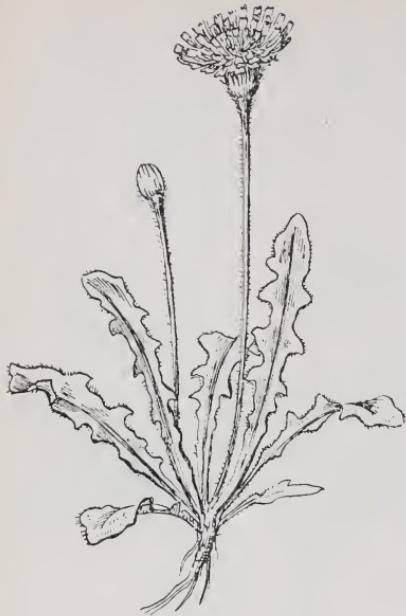


Fig. 371. LEONTODON HISPIDUS.



Fig. 372. LEONTODON AUTUMNALIS.



Fig. 373. TARAXACUM OFFICINALE.



Fig. 374. LACTUCA VIROSA.

H. umbellatum (L.). *Fig. 366.* Narrow-leaved Hawkweed. Native.
P. VII, VIII.

On the sandhills. Common. Inland. Occasional.

C. Between Willaston and Ness (Dr. G.).

H. boreale (Fries.). *Fig. 367.* Broad-leaved Hawkweed. Native.
P. VIII-IX.

Hedge banks, heaths, and on the sandhills. Frequent.

C. Bidston; Barnston; Bromborough; Willaston; Stoke.

Authority for Hieracium, F. J. Hanbury.

***Hypochaeris* (L.).**

H. glabra (L.). *Fig. 368.* Smooth Cat's-ear. Native. A. VI-VIII.
Sandhills. Rare.

L. 1869, sandy ground, Freshfield (G.G.H.). 1866, sandhills
half a mile N. of Crosby (Lord de T.). 1880, Birkdale sandhills
(Dr. G.).

NOTE.—This should be sought for in Wirral. It was seen by Profs.
Graham and C. C. Babington on the Wirral coast in 1837.

H. radicata (L.). *Fig. 369.* Long-rooted Cat's-ear. Native. B.
or P. VII.

Fields, waysides, &c. Common.

***Leontodon* (L.). (Apargia).**

L. hirtus (L.). *Fig. 370.* Hairy Hawkbit. Native. P. VII-IX.
(*Thrincia hirta*).

On the sandhills. Common. Inland. Occasional.

L. hispidus (L.). *Fig. 371.* Rough Hawkbit. Native. P. VIII.
Waysides, &c. Rare.

C. Backford; Stoke (Dr. G.).

F. Dee Cop near the Higher Ferry (Dr. G.).

L. autumnalis (L.). *Fig. 372.* Autumn Hawkbit. Native. P. VIII.
Pastures, waysides, &c. Common.

NOTE.—This species varies greatly in form.

***Taraxacum* (Juss.).**

T. officinale (Web.). *Fig. 373.* Dandelion. Native. P. III-X.

a. *Dens-leonis* (Dest.).

Meadows, waysides, &c. Very common.

b. *erythrospermum* (Andrz.).

In sandy places.

L. 1891, Birkdale (J.A.W.).

C. Wallasey sandhills (F.M.W.). Overton (J.F.R.).

NOTE.—This variety is a smaller plant than the normal form, and with the leaves much more deeply divided. The inner phyllaries are usually thickened, and have a short lobe near the apex, so as to have a double end. The fruit is of a bright brick red.

c. palustre (*D. C.*).

In damp meadows, &c. Rare.

C. Damp fields about Claughton Village.

***Lactuca* (*L.*).**

***L. virosa* (*L.*).** *Fig. 374.* Strong Scented Lettuce. Casual.
B. VII, VIII.

L. 1883, in Penny Lane, between Greenbank and Elm Hall, Wavertree (E.D.).

C. 1894, Rubbish heaps at Bromborough Pool (Dr. G.).

***L. muralis* (*Fresen.*).** *Fig. 375.* Ivy-leaved Lettuce. Native.
A. VII, VIII.

Walls, hedge banks and woods. Occasional.

L. Woods at Ince; Wood between Billinge and Windley; Sefton (D.). About Lathom Hall (T.W.). Speke (Miss R.). Quarry between Orrell and Billinge (F.M.W.). 1881, Wall by Roby Hall (R.B.).

C. Near Dean Wood and Badger's Rake (Rev. G.; R.B.). Rock-savage Woods (J.F.R.). Near Dunham on the Hill (F.M.W.). Near Pensby; Goldworth Lane, near Backford Heath; 1883, about Backford; 1884, Rocks and walls in Burton (R.B.). About Hooton; Bromborough; Ledsham to Willaston; Shotwick (Dr. G.).

***Sonchus* (*L.*).**

***S. oleraceus* (*L.*).** *Fig. 376.* Smooth Sowthistle. Native. A. VI-VIII.

In both cultivated and waste ground. Common.

***S. asper* (*Hoffm.*).** *Fig. 377.* Rough Sowthistle. Native. A. VI-VIII.

In both cultivated and waste ground. Common.

C. Stoke; Childer Thornton; &c.

***S. arvensis* (*L.*).** *Fig. 378.* Corn Sowthistle. Native. P. VII-IX.

In cultivated fields. Common. Seashores. Occasional.

C. Wallasey; West Kirby; Bromborough Pool.



Fig. 375. *LACTUCA MURALIS.*



Fig. 376. *SONCHUS OLERACEUS.*



Fig. 377. *SONCHUS ASPER.*



Fig. 378. *SONCHUS ARVENSIS.*



Fig. 379. *TRAGOPOGON PRATENSE*.



Fig. 380. *TRAGOPOGON PORRIFOLIUM*.



Fig. 381. *COTULA CORONOPIFOLIA*.



Fig. 382. *JASIONE MONTANA*.

Tragopogon (*L.*).
T. pratense (*L.*). *Fig. 379.* Yellow Goatsbeard. Native. B. VI-VIII.

In pastures, &c. Occasional.

C. Bidston (Dr. G.).

b. minus (*Mill.*).

On the sandhills on both sides of the Mersey; roadsides, &c., inland. Frequent.

C. Meols; Denhall; near Shotwick (Dr. G.).

T. porrifolium (*L.*). *Fig. 380.* Purple Goatsbeard. Casual. P. VII, VIII.

Waste ground about railways. Very rare.

L. Railway banks close to Preston Road Station (H.S.F.), and now scattered over the adjoining fields (W.H. in 1866). 1901, abundant in the same station, but new railway extensions now threaten its existence (J.A.W.).

C. Waste ground just N. of Chester Railway Station, by the line going into Wales (F.M.W.). There in 1894 (Dr. G.).

Cotula (*L.*).
C. Coronopifolia (*L.*). *Fig. 381.* Yellow Button. Colonist. P. VII, VIII.

C. 1886, Marshes just S. of Leasowe Castle (Miss Wall; R.H.D.). It has spread over this neighbourhood, and continues down to 1901 (Dr. G.).

NOTE.—It is a native of N. Europe. It is supposed to have been introduced by the late Lady Cust, who planted it in the Castle gardens.

CAMPANULACEÆ.

Jasione (*L.*).
J. montana (*L.*). *Fig. 382.* Sheepsbit Scabious. Native. B. VII, VIII.

On the sandhills, by roadsides, and on heathy ground. Locally common.

C. Bidston Hill; Irby Hill; Burton; &c.

Wahlenbergia (*Schrad.*).
W. hederacea (*Reichb.*). *Fig. 383.* Ivy-leaved Bell Flower. Native. B. VII, VIII.

(*Campanula hederacea* (*L.*)).

In damp places. Rare,

L. 1850, Upholland; Lathom Park; Narrow Moss, near Ormskirk; Hedge bank, half a mile from Crmskirk towards Halsall (D.).

C. Rivulet in Snidley, near Frodsham (J.F.R.).

***Campanula* (L.). Bell Flower.**

C. *Trachelium* (L.). Fig. 384. Nettle-leaved Bell Flower. Casual. P. VII-IX.

C. Recorded in D. from Aston Wood. Not seen since.

F. 1896, Bank by Gt. Saughall Railway Station (Dr. G.).

C. *latifolia* (L.). Fig. 385. Giant Bell Flower. Canterbury Bell. Native or Denizen. P. VII-IX.

Woods and shady places. Rare.

L. Wood near Roby Hall; Wood near Deysbrook (D.). Thicket by Burscough Mill Dam; Lane leading to the low meadows from Lathom (T.W.). 1864, two places in Ince Blundell Woods (H.E.S.).

C. Rocksavage Woods (J.F.R.). Wood between the church at Childer Thornton and Hooton Hall (Mrs. J. D.). Probably planted here.

C. *rapunculoides* (L.). Fig. 386. Creeping Bell Flower. Colonist. P. VII, VIII.

Woods, hedge banks, &c. Rare.

L. 1885, Hedge bank nearly opposite the Hill House near Altcar (R.B.).

C. 1877, old wall at Burton; 1876, Hedge bank in lane leading from Ness towards the Chester Road (R.B.). 1891, near Wallasey (Dr. G.).

NOTE.—Appears naturalised at Altcar, and also near Ness, but has gone from Burton.

C. *rotundifolia* (L.). Fig. 387. Hairbell. Native. P. VII, VIII. Dry heaths, banks, pastures, and the sandhills. Common.

***Specularia* (Heist.).**

S. *hybrida* (D. C.). Fig. 388. Venus' Looking Glass. Casual. A. VII-IX.

Among sown crops. Very rare.

C. 1867, Field of corn between Hoylake and West Kirby (H.E.S.).



Fig. 383. WAHLENBERGIA HEDERACEA.



Fig. 384. CAMPANULA TRACHELIUM.



Fig. 385. CAMPANULA LATIFOLIA



Fig. 386. *CAMpanula RAPUNCUloIDES*.



Fig. 387. *CAMpanula ROTUNDIFOLIA*.



Fig. 388. *SPECULARIA HYBRIDA*.



Fig. 389. *VACCINIUM OXYCOCCOS*.

VACCINIACEÆ.

Vaccinium (L.).

- V. Oxycoccus (L.).** *Fig. 389.* Cranberry. Native. Shrub. VI, VII.

Wet Bogs. Very rare.

L. N. side of Simmonswood Moss; Sutton Moss (D.).

- V. Vitis-Idaea (L.).** *Fig. 390.* Red Whortleberry. Cow Berry. Native. Shrub. VI, VII.

Heaths. Very rare.

C. Heath near Frodsham (J.F.R.). Bidston Hill below the lighthouse (J. MacD.). 1896, N.E. slope of Bidston Hill (Dr. G.).

- V. Myrtillus (L.).** *Fig. 391.* Bilberry. Whortleberry. Blaeberry. Native. Shrub. V, VI.

On heaths and in woods. Locally frequent.

C. Bidston Hill; Storeton Hill; Crosshill, Barnston; Thurstan Hills; Eastham Woods (Dr. G.). Frodsham; Helsby; West Kirby (R.B.).

ERICACEÆ.

Andromeda (L.).

- A. Polifolia (L.).** *Fig. 392.* Wild Rosemary. Native. Shrub. V-IX.

Peat bogs. Rare.

L. Simmonswood Moss; Bickerstaffe Moss (D.). Rainford Moss (H.S.F.).

Calluna (Salisb.). Heather.

- C. Erica (D. C.).** *Fig. 393.* Ling. The Heather. Native. Shrub. VI-VIII.

On heaths. Locally abundant.

NOTE.—Our plant is nearly all var. *glabrata*, Leem.; but occasionally var. *incana*, auct., is found, as at Bidston and Thurstan in C.

Erica (L.). Heath.

- E. Tetralix (L.).** *Fig. 394.* Cross-leaved Heath. Native. Shrub. VII, VIII.

Moist heaths. Locally common.

- E. cinerea (L.).** *Fig. 395.* Fine-leaved Heath. Native. Shrub. VII, VIII.

On heaths. Locally very common.

Pyrola (L.). Winter-green.

Pyrola rotundifolia (L.). *Fig. 396.* Broad-leaved Winter-green.
Native. P. VII-IX.

Wet hollows between the sandhills in L.

b. *maritima* (Kenyon).

Rare, but locally abundant.

L. The sandhills between Crosby and Southport—in some places the ground is made white with their exquisite blooms. The creeping root often sends up three or four flowering stems. This plant may be grown in pots or in the garden, and then will soon lose the slight differences (the bracts on the stem) by which it is separated from the ordinary woodland form. It has not been found upon the Cheshire sandhills.

MONOTROPEÆ.

Hypopithys (L.).

H. multiflora (Scop.). *Fig. 397.* Yellow Birds Nest. Native.
P. VII, VIII.

(*Monotropa hypopithys* (L.).)

L. Near the Landmark, at Formby (H.E.S.). Large valley in the sandhills at Birkdale (c.H.B.). Sandhill hollow, about 50 yards W. of Hightown Railway Station (J.H.L.).

NOTE.—This plant was supposed to be parasitic until Mr. Wilson and Mr. Rylands, of Warrington, proved that it was not.—(See *Phytologist*, vol. i, 1843, pp. 43-341. The byssoid substance investing the root, previously mistaken for suckers, is shewn by Mr. Rylands to be a fungus.)

PLUMBAGINEÆ.

Statice (L.). Sea Lavender.

S. Limonium (L.). *Fig. 398.* Great Sea Lavender. Native. P. VII, VIII.

Muddy inlets and shores of the Mersey. Rare.

L. Formerly at Garston (H.).

C. Bromborough (H.). Shore opposite the Powder Magazines down to 1901.

S. rariflora (Drej.). *Fig. 399.* Remote Flowered Sea Lavender.
Native. P. VII, VIII.

Muddy shore of the Mersey. Very rare.

(*S. bahusiensis* (Fries.).)

C. 1875, Shore of R. Mersey, between Bromborough Pool and Eastham Ferry (R.B.); there in 1901.



Fig. 390. VACCINIUM VITIS-IDÆA.



Fig. 391. VACCINIUM MYRTILLUS.



Fig. 392.
ANDROMEDA POLIFOLIA.



Fig. 393.
CALLUNA ERICA.



Fig. 394.
ERICA TETRALIX.



Fig. 395. ERICA CINEREA.



Fig. 396. PYROLA ROTUNDIFOLIA.



Fig. 397. *HYPOTHYS MULTIFLORA.*



Fig. 398. *STATICE LIMONIUM.*



Fig. 399. *STATICE RARIFLORA.*



Fig. 400. *STATICE AURICULÆFOLIA.*
c. DODARTII.



Fig. 401. ARMERIA MARITIMA.

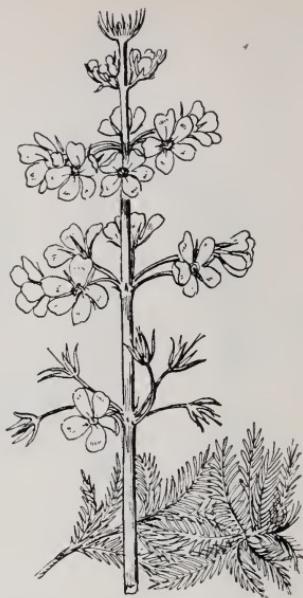


Fig. 402. HOTTONIA PALUSTRIS.



Fig. 403. PRIMULA VULGARIS.



Fig. 404. PRIMULA VERIS.

S. auriculaefolia (*Vahl.*). Lesser Sea Lavender. Native. P. VIII, IX.

(*S. binervosa* (*G. E. Sm.*)).

Rocks above the sea shore. Very rare.

c. Dodartii (*Gir.*). *Fig. 400.*

Great Hilbre, S.W. slope. Noted before 1870, and has continued down to the present time, 1901.

Armeria (*Willd.*). Thrift.

A. maritima (*Willd.*). *Fig. 401.* Thrift. Sea Pink. Native. P. IV-IX.

Salt marshes, &c. Frequent.

Abundantly about the muddy inlets and shores of the Mersey and Dee.

PRIMULACEÆ.

Hottonia (*L.*). Water Violet.

H. palustris (*L.*). *Fig. 402.* Water Violet. Native. P. V-VII.

Ponds and ditches. Occasional.

L. Frequent in ditches about Crosby and Sefton; Ince to Formby; Netherton to Southport (W.; H.S.F.; R.B.).

C. In several ponds about Bromborough (H.); and Spital (Dr. G.). Marshes between Frodsham and Helsby (Lord de T.; J.F.R.). Ince (J.F.R.). Near Wervin; near Plemstall (R.B.). Wimbolds Trafford (Miss w.).

Primula (*L.*). Primrose.

P. vulgaris (*Huds.*). *Fig. 403.* Primrose. Native. P. III-VI.

Woods, hedge banks, railway banks, &c. Locally common, but eradicated from a large portion of our district.

b. acaulis (*Jacq.*). } Both these varieties, with intermediate forms,
c. caulescens (*Bab.*). } are occasionally met with, as follows

L. Currant-tree Wood, Hale (Miss C.G.). Old Hut Lane, near Hale (R.B.). Fields at Penketh (J.F.R.). Speke (J.H.L.).

C. Hedge bank near Saughall Massie towards Greasby (R.B.; H.S.F.).

NOTE.—It is frequently seen in cottage gardens between Speke and Hale, and in all cases of enquiry is said to have been got from the woods.

P. veris (*L.*). *Fig. 404.* Cowslip. Native. P. IV-VI.

Meadows, hedge banks, &c. Occasional in L. Locally abundant in some parts of C. Common in F.

C. Wallasey to Meols; Shotwick; Backford; Bidston; Raby; Railway banks Spital to Mollington.

Lysimachia (*L.*). Loosestrife.

- L. vulgaris* (*L.*). *Fig. 405.* Yellow Loosestrife. Native. P. VIII, IX.

Wet places. Occasional.

L. Crosby (*W.*). Sefton; Formby; Southport; Woods near Stopgate, Croxteth; Hale; Knowsley; Ponds near Childwall Church (*D.*). Dungeon; inland of Hightown Railway Station; between Lydiate and River Alt (*R.B.*).

C. Used to grow at Bebington (*D.*)—but gone long ago. Frodsham Marsh (*J.F.R.*).

- L. Nummularia* (*L.*). *Fig. 406.* Creeping Jenny. Moneywort. Native. P. VI, VII.

Damp places. Rare.

L. Roadside from Knowsley towards Simmonswood Moss (*D.*). Field path at Knotty Ash (*c.r.c.*).

C. Frodsham (*J.F.R.*). W. side of S. U. Canal near Stoke (*R.B.*); and also on same bank between Backford and Mollington Viaduct (*Miss W.*). Field near the Weaver Canal (*E.D.*).

- L. nemorum* (*L.*). *Fig. 407.* Yellow or Wood Pimpernel. Native. P. VI-IX.

Woods and shady places. Frequent.

C. Dibbinsdale.

F. Behind Bagillt.

Glaux (*L.*). Sea Milkwort.

- G. maritima* (*L.*). *Fig. 408.* Sea Milkwort. Black Saltwort. Native. P. VI, VII.

Salt marshes. Frequent.

C. Marshy places behind Leasowe Embankment; from Denhall to Burton Point; Bromborough Pool (*Dr. G.*).

F. At intervals from Queensferry to Ffynnon Groew; E. cop of River Dee from Chester to Queensferry (*R.B.*).

Anagallis (*L.*). Pimpernel.

- A. arvensis* (*L.*). *Fig. 409.* Scarlet Pimpernel. The Poor Man's Weatherglass. Native. A. VI-VIII.

Cultivated fields, waysides, &c. Common.

- A. coerulea* (*Schreb.*). Blue Pimpernel. Casual. A. VI-VIII.

Cultivated ground, and on rubbish by the canal and docks. Rare.



Fig. 405. *LYSIMACHIA VULGARIS.*



Fig. 406. *LYSIMACHIA NUMMULARIA.*



Fig. 407. *LYSIMACHIA NEMORUM.*



Fig. 408. *GLAUX MARITIMA.*



Fig. 409. ANAGALLIS ARVENSIS

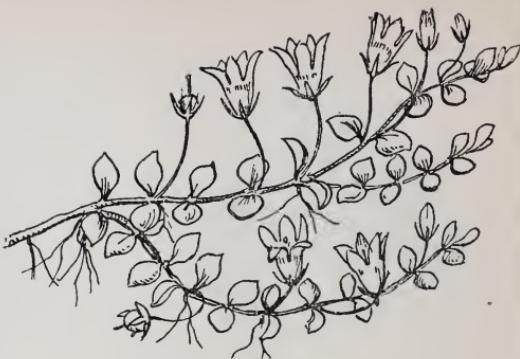


Fig. 410. ANAGALLIS TENELLA.

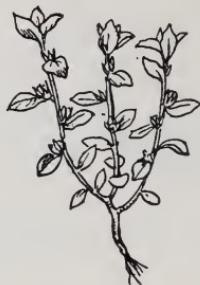


Fig. 411. CENTUNCULUS MINIMUS.



Fig. 412. SAMOLUS VALERANDI



Fig. 413. FRAXINUS EXCELSIOR.

L. Banks of canal below the racecourse at Aintree; Litherland; Garston Docks (R.B.).

C. Birkenhead Docks (R.B.); 1892, by Meols Railway Station (Dr. G.).

NOTE.—Seldom met with or occurring twice in the same exact locality.

A. tenella (L.). *Fig. 410.* Bog Pimpernel. Native. P. VIII, VIII. Boggy and sandy ground. Occasionally inland. Frequent near the coast.

L. Wet hollows among the sandhills from Crosby to Birkdale.

C. Wallasey sandhills (Miss W.). Leasowe, inland of embankment; West Kirby; Thurstanston (Dr. G.).

Centunculus (L.).

C. minimus (L.). *Fig. 411.* Bastard Pimpernel. Native. A. VI-VIII.

Damp places among the sandhills. Very rare.

L. Near Formby; close to Ainsdale Station (D.). South shore at Southport (R.B.).

C. Along Greasby Brook, on E. border of Thurstanston Common (F.M.W.; H.S.F.).

Samolus (L.).

S. Valerandi (L.). *Fig. 412.* Brookweed. Native. P. VII-IX.

Damp places, especially near the coast. Locally frequent.

C. About Leasowe and Meols. Shotwick.

OLEACEÆ.

Fraxinus (L.).

F. excelsior (L.). *Fig. 413.* The Ash. Native. Tree. IV, V.

Woods and hedges. Common. Generally planted.

Ligustrum (L.).

L. vulgare (L.). *Fig. 414.* Privet. Native or Denizen. Shrub. VI, VII.

In hedges and plantations. Frequent, generally planted.

C. Saughall Massie; Thingwall; Raby Mere; Mollington; Gt. Saughall to Blacon Point.

APOCYNACEÆ.

Vinca (L.).

V. major (L.). *Fig. 415.* Greater Periwinkle. Denizen. Shrub. IV-VI.

Hedge banks and roadsides. Rare.

C. Roadside between Eastham to within one mile of Childer Thornton (Miss A.). Near Frodsham (T.G.). Roadside, quarter mile N. of Moreton; 1902, corner of roadside from Carr Houses towards Saughall Massie (Dr. G.).

V. minor (*L.*). *Fig. 416.* Lesser Periwinkle. Denizen. Shrub. V-VII.

Hedgebanks and in thickets. Rare.

L. In the woods at Hale (W.). Wood near the shore at Speke Hall (D.). Ormskirk, with variegated leaves (T.W.). In a deep dingle at Appleton (J.F.R.).

C. 1893, Roadside, half a mile from Whitby towards Stoke (Dr. G.).

GENTIANÆ.

Blackstonia (*Huds.*).

B. perfoliata (*Huds.*). *Fig. 417.* Perfoliate Yellowwort. Yellow Centaury. Native. B. VII, VIII.

(*Chlora perfoliata* (*L.*)).

Clayfields and banks, and on the sandhills. Frequent.

C. Wallasey Marsh to Moreton; Prenton; New Ferry; Railway at Thurstaston; Hooton; Mollington; Shotwick; Stoke (Dr. G.).

F. Near Queensferry (R.H.D.). Blacon Point (Dr. G.).

Erythræa (*Renealm.*).

E. Centaurium (*Pers.*). *Fig. 418.* Centaury. Native. A. or B. VII, VIII.

Dry pastures, and on the sandhills. Common.

NOTE.—A very variable plant with us, in shape of leaf approaching *E. latifolia* and *E. littoralis*.

b. capitata (*Koch.*).

L. 1892, Hightown (J.A.W.).

E. latifolia (*Sm.*). Broad-leaved Centaury. Native. A. or B. VII, VIII.

Damp places among L. sandhills. Very rare. Is probably now extinct in England.

L. It has been found about Seaforth Common; Formby; Ainsdale and Birkdale (H.S.F.; F.M.W.). A short distance W. of Freshfield Railway Station (R.B.), in 1871-2. It has not been recorded since that date, although careful search has been made by many botanists. The specimens in the London Natural History Museum all came from neighbourhood of Formby, and the curators told me that it had not been met with for many years (Dr. G.).



Fig. 414. *LIGUSTRUM VULGARE.*



Fig. 415. *VINCA MAJOR.*



Fig. 416. *VINCA MINOR.*

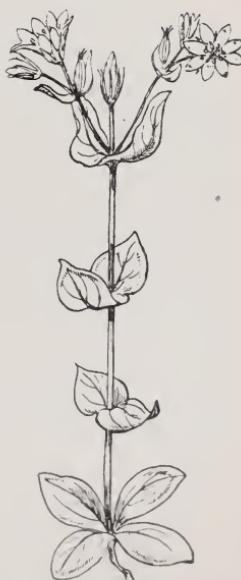


Fig. 417. *BLACKSTONIA PERFOLIATA.*



Fig. 418.
ERYTHRÆA CENTAURIUM.



Fig. 419.
ERYTHRÆA LITTORALIS.



Fig. 420
ERYTHRÆA PULCHELLA.



Fig. 421.
GENTIANA PNEUMONANTHE.



Fig. 422.
CENTIANA AMARELLA.



Fig. 423.
GENTIANA CAMPESTRIS.

E. littoralis (*Fries.*). *Fig. 419.* Narrow-leaved Centaury. Native. A. or B. VII, VIII.

Damp places among the sandhills. Frequent on L. side; rare in C.

C. Wallasey sandhills (Dr. G.).

NOTE.—Very variable in habit, the extremes being a large bushy plant one foot high, a single stem single flowered of an inch or less to four inches in height, and a squat tufted plant from one to two inches high.

E. pulchella (*Fries.*). *Fig. 420.* Slender Centaury. Native. A. or B. VII, VIII.

Waste ground and the borders of cultivated ground near the sea. Rare.

L. Formby and Southport (D.). 1873, Rifle Range at Altcar (F.M.W.; R.B.).

C. Sandhills at Hoylake and New Brighton (D.). Helsby (J.F.R.). Where the lane from Newton Heath divides, just before reaching Beacon Hill, near West Kirby (F.M.W.; W.W.N.). 1891, Leasowe (Dr. G.).

Gentiana (*L.*).

G. Pneumonanthe (*L.*). *Fig. 421.* Marsh Gentian, or Calathian Violet. Native. P. VII-IX.

On boggy heaths. Rare and local.

L. Runcorn Heath (E.D.).

C. Marshy places on Oxton and Thurstanston Heaths.

G. Amarella (*L.*). *Fig. 422.* Autumnal Gentian. Native. A. VIII, IX.

In pastures and sandy ground near the sea. Rare.

L. 1880, Hollow among the sandhills between Hightown Railway Station and the mouth of the River Alt (R.B.).

C. Near Hadlow Road.

G. campestris (*L.*). *Fig. 423.* Field Gentian. Native. A. VIII, IX.

In grassy spots near the sea. Occasional.

L. 1880, Hollow among the sandhills between Hightown Railway Station and the mouth of the River Alt (R.B.). River bank, Speke.

C. 1875, Hollows among the sandhills between Gayton Cottage and Heswall Point (R.B.). 1901, short turf near Leasowe lighthouse (Dr. G.).

Menyanthes (*L.*).

M. trifoliata (*L.*). *Fig. 424.* Buckbean or Bogbean. Native. P. V-VII.

Boggy places. Occasional.

C. 1888, Ponds about Capenhurst, Ledsham, Badger's Rake, and towards Willaston; Damp ground at the head of Raby Mere (R.B.). In the Birket; Leasowe to Meols; near West Kirby; Mollington; above E. slope of Dibbinsdale (Dr. G.).

BORAGINEÆ.

Cynoglossum (L.).

C. officinale (L.). *Fig. 425.* Hound's Tongue. Native. B. or P. V-VII.

Sandhills. Frequent.

L. Hall Road to Birkdale.

C. Sandhills, New Brighton to Hoylake; Shotwick, towards the marshes; Ness; Stoke.

b. subglabrum (Syme.).

L. Southport, 1892 (J.A.W.).

Asperugo (L.).

A. procumbens (L.). *Fig. 426.* Madwort. Casual. A. VI, VII.

L. 1893, Aintree (J.A.W.).

C. 1892, Rubbish heaps at Meols (Miss W.).

Symphytum (L.).

S. officinale (L.). *Fig. 427.* Comfrey. Native. P. V-VII.

Damp places. Occasional.

L. Near Crosby (H.). Southport (D.). 1886, near the old quarry at Melling (R.H.D.).

C. Near Wallasey Church (H.). About Ellesmere Port; Little Stanney; Thornton le Moors; Picton; Wimbolds Trafford; and River Gowey (F.M.W.; R.B.; &c.). About Meols to Caldy; Thornton Hough; Willaston (Dr. G.).

F Blacon Point (Dr. G.).

b. patens (Sibth.).

Damp places. Rare.

L. 1871, Green Bank Farm, near Sefton Park; Railway bank, Edge Lane (Miss J. B.).

Borago (L.).

B. officinalis (L.). *Fig. 428.* Borage. Denizen. B. VI-VII.

C. Meols; Willaston (Dr. G.).

NOTE.—Occurs occasionally as an outcast, or an escape from gardens. It is grown in country parts for bees.



Fig. 424. *MENYANTHES TRIFOLIATA*



Fig. 425. *CYNOGLOSSUM OFFICINALE*.



Fig. 426. *ASPERUGO PROCUMBENS*.



Fig. 427. *SYMPHYTUM OFFICINALE*.



Fig. 428. *BORAGO OFFICINALIS*.



Fig. 429. *ANCHUSA SEMPERVIRENS*.



Fig. 430. *LYCOPSIS ARVENSIS*.

Anchusa (L.).

- A. sempervirens (L.).** *Fig. 429.* Evergreen Alkanet. Denizen.
P. V-VII.

Fields and waste ground. Very rare.

L. Near Walton Hall (D.). Allerton (T.G.).

C. Hooton Park (Miss G.). 1882, between West Kirby and Grange Hill (R.B.); there 1895 (Dr. G.).

Lycopsis (L.).

- L. arvensis (L.).** *Fig. 430.* Small Buglos. Native. P. VI-IX.
Sandy fields. Common.

Myosotis (L.). Scorpion-grass.

- M. caespitosa (Schultz.).** *Fig. 431.* Tufted Water Forget-me-not.
Native. P. V.-VIII.
In ditches and other wet places. Common.

- M. palustris (With.).** *Fig. 432.* True Forget-me-not. Native.
P. V-VIII.

By slow streams and in marshy places. Frequent.

- M. repens (D. Don.).** *Fig. 433.* Creeping Forget-me-not. P.
VI-VIII.

In ditches and other wet places. Rare.

L. Pond side at Greenbank (J.H.L.).

C. Frodsham Marsh (J.F.R.). 1892, Ditch W. of Burton
(Dr. G.).

- M. sylvatica (Hoffm.).** *Fig. 434.* Wood Forget-me-not. Native.
P. V-VII.

In woods. Very rare.

L. In a wood near the bottom of the garden at Croxteth Hall
(D.).

- M. arvensis (Hoffm.).** *Fig. 435.* Field Forget-me-not. Native.
A. VI-VIII.

In cultivated fields and waste sandy ground. Common.

- b. umbrosa (Bab.).*

In shady woods. Frequent. Often mistaken for *M. sylvatica*.

- M. collina (Hoff.).** *Fig. 436.* Dwarf Forget-me-not. Native.
B. or P. IV, V.

Sandhills and hedgebanks. Rare.

L. 1901, by footpath from Hightown Station to Rifle Range
(Dr. G.).

M. versicolor (*Reich.*). *Fig. 437.* Parti-coloured Forget-me-not. Native. A. or B. V, VI.

Sandhills, fields, &c. Common.

C. Prenton; Storeton; Thingwall; Spital; Ness.

***Lithospermum* (*L.*).** Gromwell.

L. officinale (*L.*). *Fig. 438.* Gromwell. Native. P. VI-VIII.

In bushy and waste places. Very rare.

L. Swampy places amongst the sandhills at Little Crosby (D.), (?) extinct. Fields beyond the iron church, Aigburth (Mr. Palgrave), (?) extinct. 1879, scattered among the sandhills between Hightown Station and River Alt, decreased in quantity in 1886.

L. arvense (*L.*). *Fig. 439.* Field Gromwell.

Prior to 1872, was recorded from Allerton; Aigburth; Gill Moss Chapel; in L. Bidston Stone Quarry, Egremont, in C. Not seen since.

***Echium* (*L.*).**

E. vulgare (*L.*). *Fig. 440.* Viper's Buglos. Native. A. or B. VI, VII.

Sandy ground near the sea. Occasional.

L. About the sandhills and railway from Crosby to Ainsdale.

C. At New Brighton (Miss C. G.), seen on the Golf Links, 1892. In a gravel pit half-mile W. of Denhall Colliery (Lord de T.). Meols; Hoylake; West Kirby (Dr. G.).

Amsinckia lycopoides (*Lehm.*). *Fig. 441.*

L. 1880, Birkdale Sandhills (Dr. G.). 1892, Canal Banks, Aintree (J.A.W.).

C. As a casual, 1894, in waste ground about Hoylake Gas Works (Dr. G.).

A. spectabilis.

1901, as a casual about Formby (R.C.).

Echinopspermum Lappula (*Lehm.*). *Fig. 442.* Native in S. Europe. A. VII, VIII.

C. 1895, as a casual in waste ground near Hoylake Gas Works (Dr. G.).

CONVOLVULACEÆ.

***Calystegia* (*R. Br.*).**

C. Sepium (*R. Br.*). *Fig. 443.* Great Convolvulus. Native. P. VII, VIII.

Hedges. Frequent.



Fig. 431. *MYOSOTIS CAESPITOSA*.



Fig. 432. *MYOSOTIS PALUSTRIS*.



Fig. 433. *MYOSOTIS REPENS*.



Fig. 434. *MYOSOTIS SYLVATICA*.



Fig. 435.
MYOSOTIS ARVENSIS.



Fig. 436.
MYOSOTIS COLLINA.



Fig. 437.
MYOSOTIS VERSICOLOR.



Fig. 438.
LITHOSPERMUM OFFICINALE.



Fig. 439.
LITHOSPERMUM ARVENSE.



Fig. 440.
ECHIUM VULGARE.

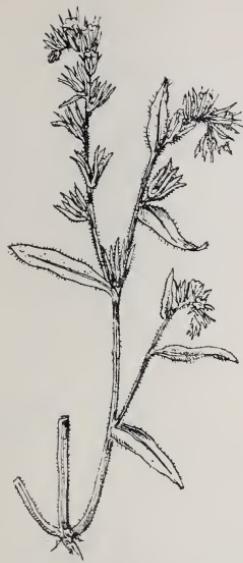


Fig. 441. *AM SINCKIA LYCOPSOIDES.*



Fig. 442. *ECHINOSPERMUM LAPPULA.*



Fig. 443. *CALYSTEGIA SEPIMUM.*



Fig. 444. *CALYSTEGIA SOLDANELLA.*



Fig. 445. CONVOLVULUS ARVENSIS.



Fig. 446. CUSCUTA EPITHYUM
upon Salix repens.



Fig. 447. SOLANUM DULCAMARA.



Fig. 448. SOLANUM NIGRUM.

C. *Soldanella* (*R. Br.*). *Fig. 444.* Sea Convolvulus. Native. P. VI-VIII.

On the sandhills. Very rare.

L. The sandhills at Southport and Birkdale.

C. The sandhills at Wallasey (*J.H.L.*). Sandy banks of the Dee at West Kirby (*F.M.W.*).

Convolvulus (*L.*).

C. *arvensis* (*L.*). *Fig. 445.* Small Convolvulus. Native. P. VI-VIII.

In cultivated ground, hedge banks and the sandhills. Common.

Cuscuta (*L.*). Dodder.

C. *Epilinum* (*Weihe.*). Flax Dodder. Colonist. A. VIII.

C. 1875, on *Senecio vulgaris* in a field on the W. side of the high road between New Ferry toll bar and Bromborough Pool (*J.W.B.*), (?) extinct.

C. *europaea* (*L.*). Greater Dodder. Native. A. VIII, IX.

C. 1869, on *Vicia sativa* in fields at Woodchurch (*Miss C. G.*).

C. *Epithymum* (*Murr.*). *Fig. 446.* Lesser Dodder. Native. A. VII-IX.

L. 1901, Sandhills at Formby, on *Salix repens* and *Lotus pilosus* (*w.s.l.*).

C. On heath at Bidston Hill (*D.*), (?) extinct.

C. *Trifolii* (*Bab.*). Clover Dodder. Colonist. A. VII-IX.

L. 1850 and up to 1872, on red clover at Hale (*D.*). 1865, on vetches at Greenbank Farm (*H.G., Jun.*), (?) extinct.

C. Introduced at Frodsham with Alsike clover seed (*J.F.R.*), (?) extinct.

SOLANACEÆ.

Solanum (*L.*). Nightshade.

S. *Dulcamara* (*L.*). *Fig. 447.* Woody Nightshade. Native. P. VI, VII.

Banks of hedges and ponds. Common. Also wet shore near Parkgate.

S. *nigrum* (*L.*). *Fig. 448.* Black Nightshade. Native or Colonist. A. VII-X.

In waste or cultivated ground near the sea. Occasional.

L. 1876, sandy lane inland of Formby Railway Station; in a lane between Hightown and Little Crosby (*R.B.*). 1884, Roadside by Orrell Hill Wood; between Hightown and Lady Green (*J.V.*). 1891, Seven Pits, Aintree (*J.A.W.*).

C. 1893, Bidston; Wallasey (Miss W.). Meols, from Hoylake along the shore to Burton Point and the village (R.B.). Raby Mere; Puddington; Roadside E. of Mollington Station (Dr. G.).

S. rostratum (*Dunal.*). *Fig. 449.* A casual. Native of the plains from Nebraska to Texas, U.S.A.

L. 1887, margin of the sandhills between Blundellsands and Hall Road (J.M.). 1896-1901, Canal banks, Aintree (J.A.W.).

***Lycium* (*L.*).**

L. barbarum (*L.*). *Fig. 450.* The Tea Plant. Denizen. Shrub. VI-VIII.

An African plant, now naturalised on the Norfolk coast and in our district.

L. Hale Point.

C. About the sandhills at Wallasey and Hoylake.

F. The Dee Cop.

***Datura* (*L.*). Thorn-apple.**

D. Stramonium (*L.*). *Fig. 451.* Thorn-apple. Denizen. A. VI, VII. In cultivated or waste ground. Occasional.

L. 1878, small field inland of Hightown Station (R.B.). 1884, Shore-side of same station (J.V.). 1892, Aintree racecourse (J.A.W.).

C. In an old quarry half a mile W. of Caldy (E.D.); has existed there for several years. Roadside N. E. of Bidston village (Dr. G.).

***Hyoscyamus* (*L.*). Henbane.**

H. niger (*L.*). *Fig. 452.* Henbane. Native. A. or B. VI-VIII. In sandy ground. Rare.

L. Banks of River Alt, near Hightown Station (R.B.). 1892, Aintree racecourse (J.A.W.).

C. About Great Meols and Hoylake; at intervals along the shore from Heswall to Burton Point (R.B.). Hilbre (J.V.).

H. albus.

Has been met with about Birkenhead Docks as a ballast plant.

SCROPHULARINEÆ.

***Verbascum* (*L.*). Mullein.**

V. Thapsus (*L.*). *Fig. 453.* Great Mullein. Native. B. VII-IX. Banks and waste ground. Occasional. More frequent in C.

L. Southport (D.). Banks of River Mersey at Speke and Hale; about Walton Junction (R.B.).



Fig. 449. *SOLANUM ROSTRATUM.*



Fig. 450. *LYCIUM BARBARUM.*



Fig. 451. *DATURA STRAMONIUM.*



Fig. 452. *HYOSCYAMUS NIGER.*



Fig. 453. VERBASCUM THAPSUS.



Fig. 454. VERBASCUM NIGRUM.



Fig. 455. VERBASCUM VIRGATUM.

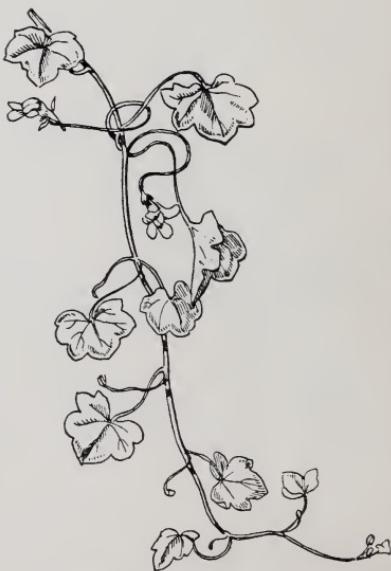


Fig. 456. LINARIA CYMBALARIA.

C. Lane from Paddington to the main Chester road; Burton Rocks, and the cops northward to the colliery (Lord de T.). Goldworth Lane, Stanney; 1886, Wallasey (R.B.). Oxton Heath; Meols; West Kirby; Dawpool; Willaston (Dr. G.).

V. nigrum (L.). Fig. 454. Black Mullein. Casual.

C. 1890, two plants in an old quarry in Prenton Lane; not seen since (Dr. G.).

V. virginatum (With.). Fig. 455. Golden-rod Mullein. Casual. B. VIII.

C. 1895, Field off Darmond's Green, West Kirby (A.K.B.).

V. Blattaria (L.). Moth Mullein. Casual. B. VIII.

C. 1901, Lane between Burton Wood and Hadden Wood (Dr. F.).

Linaria (Mill.). Toadflax.

L. Cymbalaria (Mill.). Fig. 456. Ivy-leaved Toadflax. Colonist. P. V-X.

Old walls, &c. Occasional. Either introduced or escaped from cultivation.

C. Oxton; Hooton; Whitby; Backford (Dr. G.).

L. Elatine (Mill.). Sharp-leaved Fluellin. Casual. A. VII-IX.

Waste places. Very rare, and not permanent.

C. About Parkgate (D.). Not recorded for many years.

L. vulgaris (Mill.). Fig. 457. Yellow Toadflax. Native. P. VI-VIII.

Hedges and waste ground. Common.

NOTE.—The remarkable state called Peloria was met with at Seaforth in 1864 (T.G.).

L. viscosa (Moench.). Fig. 458. Least Toadflax. Casual. A. VI-VIII.

(*L. minor* (Desf.).)

C. 1895, on the railway from Neston to Willaston (Dr. G.).

Antirrhinum (L.). Snapdragon.

A. majus (L.). Greater Snapdragon. Denizen. P. VI-VIII.

On old walls, as an escape from cultivation. Rare.

L. With both purple and white flowers on an old wall near Broad Green; also on an old brick wall near Wavertree lake (D.). Not recently recorded.

C. 1901, on an old brick wall at Willaston, escaped from a garden (Dr. G.).

Scrophularia (L.). Figwort.

S. aquatica (L.). *Fig. 459.* Water Betony. Native. P. VII, VIII.
In wet places. Frequent.

C. Backford to Stoke; Shotwick Dale; Parkgate; Great Saughall to Chester; Capenhurst.

S. nodosa (L.). *Fig. 460.* Knotty-rooted Figwort. Native. P. VII, VIII.
In damp shady places. Common.

Mimulus (L.). Monkey Flower.

M. luteus (L.). *Fig. 461.* Yellow Monkey Flower. Colonist. P. VII, VIII.

In damp places. Very rare.

L. Two or three plants on the side of a ditch, about three-quarters of a mile W. of Halsall, just before reaching High Woods Farm (R.B.).

Limosella (L.). Mudwort.

L. aquatica (L.). *Fig. 462.* Mudwort. Native. A. VII-IX.
The borders of ponds. Very rare.

L. Burscough Mill Dam near Ormskirk (D.).

C. S.E. margin of Raby Mere; there in 1895.

Digitalis (L.). Foxglove.

D. purpurea (L.). *Fig. 463.* Foxglove. Native. B. or P. VI-VIII.

Hedge banks and bushy places, &c. Common.

NOTE.—Foxglove = Folksglove, i.e., Fairies' glove.

Veronica (L.). Speedwell.

V. hederacfolia (L.). *Fig. 464.* Ivy-leaved Speedwell. Native. A. IV-VI.

In both cultivated and waste places. Very common.

V. polita (Fr.). *Fig. 465.* Grey procumbent Speedwell. Native. A. IV-VIII.

By roadsides and in cultivated ground. Frequent.

L. Southport (D.).

C. Bidston, roadside between the hill and the church (D.). Roadside at Frankby (F.M.W.). 1884, close to Burton, on E. side (R.B.). 1892, Oxton; Hooton Station (Dr. G.).

V. agrestis (L.). *Fig. 466.* Green procumbent Speedwell. Native. A. IV-IX.

In fields and waste places. Common.



Fig. 457.
LINARIA VULGARIS.



Fig. 458.
LINARIA VISCOLA.



Fig. 459
SCROPHULARIA AQUATICA.



Fig. 460. *SCROPHULARIA NODOSA.*



Fig. 461. *MIMULUS LUTEUS.*



Fig. 462. *LIMOSELLA AQUATICA.*



Fig. 463. *DIGITALIS PURPUREA.*

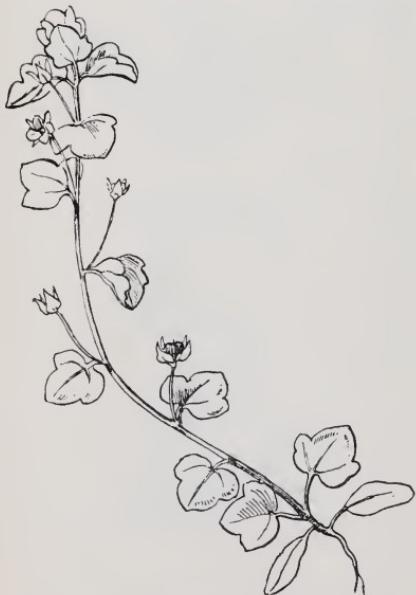


Fig. 464. *VERONICA HEDERÆFOLIA.*



Fig. 465. *VERONICA POLITA.*



Fig. 466. *VERONICA AGRESTIS.*



Fig. 467. *VERONICA PERSICA.*



Fig. 468. *VERONICA ARVENSIS.*



Fig. 469. *VERONICA SERPYLLIFOLIA.*



Fig. 470 *VERONICA OFFICINALIS.*



Fig. 471. *VERONICA CHAMÆDRYS.*



Fig. 472. *VERONICA MONTANA.*

V. persica (*Poir.*). *Fig. 467.* Buxbaum's Speedwell. Colonist.
A. V-IX.

V. Buxbaumii (*Ten.*).

In cultivated ground. Frequent.

L. Lane at Green Bank (*H.S.F.*; *F.P.M.*). Roadside between Little Altcar and Alt Bridge; Cornfield close to Sefton Station; Lady Green; Ince Blundell, and at intervals to Thornton; 1878, Fields between St. Michaels and Otterspool Stations (*R.B.*). Southport (*J.H.*).

C. Roadside at Saughall Massie (*H.E.S.*). Near Frodsham (*J.F.R.*). Potato patch near Ince Station; above Eastham Ferry; Capenhurst; Great Meols (*R.B.*). Shotwick (*R.D.B.*). Burton (*Rev. H.*). Bromborough Pool; Prenton (*Dr. G.*).

F. Nant-y-Flint (*Dr. G.*).

NOTE.—This species has of late years much increased with cultivation, and, indeed, appears to be taking the place of the preceding species.

V. arvensis (*L.*). *Fig. 468.* Wall Speedwell. Native. A. IV-IX.
Dry sandy places, the top of walls, &c. Very common.

V. serpyllifolia (*L.*). *Fig. 469.* Thyme-leaved Speedwell. Native.
P. IV-IX.

In damp pastures, waste places, &c. Common.

V. officinalis (*L.*). *Fig. 470.* Common Speedwell. Native. P.
VI-IX.

Dry banks. Common.

V. Chamaedrys (*L.*). *Fig. 471.* Germander Speedwell. Native.
P. V-VIII.

Shady places, hedge banks, &c. Very common.

V. montana (*L.*). *Fig. 472.* Mountain Speedwell. Native. P.
V, VI.

In damp woods. Occasional.

L. Croxteth Woods (*D.*). Woods at Speke (*Miss C. G.; &c.*).
Deanwood near Upholland; Lane one mile W. of summit of Billinge Beacon (*R.B.*).

C. Bromborough and Eastham Woods (*D.*). Mount Wood,
Prenton (*H.S.F.*). Cattenhall (*J.F.R.*). Near Hooton Hall;
Stanney Wood near Backford Heath (*F. M. W.; &c.*). 1892,
Heswall, between river and railway (*Dr. G.*). 1875, about Long
Green, one mile S. of Dunham Heath.

V. scutellata (*L.*). *Fig. 473.* Marsh Speedwell. Native. P.
VI-VIII.

Banks of ponds and ditches and boggy places. Occasional.
Locally common.

L. Ditches about Little Crosby; Formby; Hightown; Southport; Hale; West Derby; Kirkby (R. B.; &c.). Eccleston Dam (Dr. W.).

C. Pond towards Clatterbridge from Bebington (D.). Raby Mere; West Kirby (Miss C. G.). Wallasey below Claremount School (F.M.W.). Little Sutton (H.). Pond near Elton Green (R.B.). Pond S.W. of Capenhurst Station (F.M.W.). Ponds about Landican; Langfields; 1893, abundantly in pits between Ledsham and Willaston, and thence towards Ness (Dr. G.).

b. parvularia (*Turp. et Poit.*).

Has been noted in our district.

V. Anagallis (*L.*). *Fig. 474.* Water Speedwell. Native. B. or P. VI-IX.

In ditches and wet places. Frequent.

L. Formby to Halsall.

C. Meols; Langfields; Great Saughall to Chester; Burton; Hadlow Road.

V. Beccabunga (*L.*). *Fig. 475.* Brooklime. Native. P. V-VIII

By ditches and in wet places. Common.

C. Found with pale lilac flowers in a ditch below the Nunnery at Upton (Dr. G.).

Euphrasia (*L.*). Eyebright.

E. officinalis (*L.*). *Fig. 476.* Eyebright. Native. A. VI-VIII.

In meadows, on heaths, &c. Very common.

Authority for *Euphrasia* and its segregates, F. Townsend in *Journ. Bot.*

Bartsia (*L.*). Red Eyebright.

B. Odontites (*Huds.*). *Fig. 477.* Red Bartsia. Native. A. VII-IX.

In both cultivated and waste places. Common.

C. Found with white flowers at Hoylake and West Kirby (Dr. G.).

a. verna (*Reichb.*).

C. 1897, near Eastham Locks (J.A.W.).

c. divergens (*Balb.*).

C. 1892, Wallasey (J.A.W.).

B. viscosa (*L.*). *Fig. 478.* Yellow viscid Bartsia. Native. A. VII-IX.

Sandy ground near the sea. Occasional. More rarely inland.

L. Damp hollows among the sandhills about Formby, &c.;



Fig. 473.
VERONICA SCUTELLATA.



Fig. 474.
VERONICA ANAGALLIS.



Fig. 475.
VERONICA BECCABUNGA.



Fig. 476.
EUPHRASIA OFFICINALIS.



Fig. 477.
BARTSIA ODONTITES.



Fig. 478.
BARTSIA VIScosa.



Fig. 479. *PEDICULARIS PALUSTRIS.*



Fig. 480. *PEDICULARIS SYLVATICA.*



Fig. 481.
MELAMPYRUM PRATENSE



Fig. 482.
RHINANTHUS CRISTA-GALLI.



Fig. 483.
OROBANCHE MAJOR.

inland, near Sefton (D.). Near Ormskirk (H.). Headbolt Lane between Ainsdale and Formby Hall, and in several cross lanes (R.B.).

C. 1894, at Hoylake (R.B.). Very rare in C.

***Pedicularis* (L.). Lousewort.**

- P. palustris** (L.). *Fig. 479.* Upright Lousewort. Native. B. V-VII.

In marshy places. Very local.

L. In marshy hollows among the sandhills from Formby to Southport; near the railway station at Barton and Halsall.

C. In marshy places around West Kirby, and near Raby Mere.

- P. sylvatica** (L.). *Fig. 480.* Procumbent Lousewort or Dwarf Red Rattle. Native. B. or P. V-VIII.

In wet, heathy pastures. Common.

***Melampyrum* (L.). Cow-wheat.**

- M. pratense** (L.). *Fig. 481.* Cow-wheat. Native. A. VI-VIII.

In woods and shady places. Occasional.

C. 1861, Overton Hill, Frodsham (D.). 1895, Eastham Woods; Barnston Dale, at the head (Dr. G.).

NOTE.—Though called *pratense*, it is never found in fields.

***Rhinanthus* (L.). Yellow Rattle.**

- R. Crista-galli** (L.). *Fig. 482.* Yellow Rattle. Native. A. VI, VII.

In meadows and about the sandhills. Common.

OROBANCHACEÆ.

***Orobanche* (L.). Broom-rape.**

- O. major** (L.). *Fig. 483.* Greater Broom-rape. Native. P. VI-VIII.

Parasitic upon the roots of furze and broom. Very rare.

L. Among gorse bushes at Allerton (W.). 1850, on Billinge Beacon (D.).

C. 1855, on broom at Eastham (D.); now destroyed.

NOTE.—There are no recent records.

- O. minor** (Sm.). *Fig. 484.* Lesser Broom-rape. Native. P. VII-IX.

On clover. Very rare and local.

L. 1850, Clover field at Hale (J.H.). 1874, in field on clover

between Pewit Hall and Stockton's Wood, Speke (H.S.F.; &c.). 1876, Field by Orrell Hill Wood, between Hightown and Lady Green. 1878, at Downholland, on W. side of the canal bridge; 1885, abundant between Fleambridge and Altcar (R.B.).

O. amethystea (*Thuill.*).

L. 1901, as a casual abundant in Walton Prison grounds on *Campanula media*, no doubt introduced with the roots of the latter. It has not been observed on this host before (J.A.W.).

LENTIBULARIEÆ.

***Utricularia* (L.). Bladderwort.**

U. vulgaris (L.). *Fig. 485.* Greater Bladderwort. Native. P. VI-IX.

In ponds, ditches, &c. Occasional.

L. Near Southport (D.). Ditches about Formby; Altcar; Hightown and Little Crosby; Barton; Halsall, towards Birkdale (R.B.; &c.).

C. Pond at Gillbrook, Claughton; Pond just S.E. Meols Station (F.M.W.; H.S.F.). Ponds about Irby (F.M.W.). Thornton Marsh (J.S.). Dykes below Frodsham; in a plash to the N. of Mollington (Lord de T.). Ponds about one mile N. of Willaston (R.B.). Langfields (Dr. G.). 1889, by the River Gowey, near Ellesmere Port.

U. minor (L.). Lesser Bladderwort. Native. P. VI-IX.

In ponds, ditches, &c. Rare.

L. Sutton Moss; Altcar and Formby Marshes; Parr Flat, near Southport (D.).

C. Thornton Marsh (J.S.); confirmation is needed.

***Pinguicula* (L.). Butterwort.**

P. vulgaris (L.). *Fig. 486.* Butterwort. Native. P. VI, VII.

In marshy places. Rare.

L. Southport (D.). Simmonswood Moss (W.H.).

C. Marshy spots about Thurstanston (Miss C.G.). Stream side at Raby (W.H.H.). Bog near Frodsham (J.F.R.). Langfields (A.K.B.).

VERBENACEÆ.

***Verbena* (L.). Vervain.**

V. officinalis (L.). *Fig. 487.* Vervain. Native. P. VIII, IX.

Roadsides and waste places, generally about villages. Very rare in L. Occasional in C.

L. Hale; near Southport (D.). No recent records from L.



Fig. 484. *OROBANCHE MINOR.*

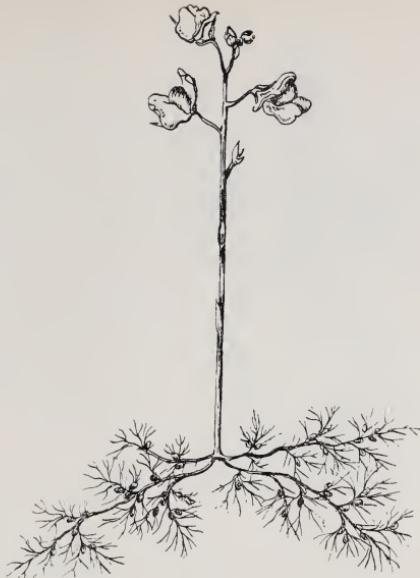


Fig. 485. *UTRICULARIA VULGARIS*



Fig. 486. *PINGUICULA VULGARIS.*



Fig. 487. *VERBENA OFFICINALIS.*

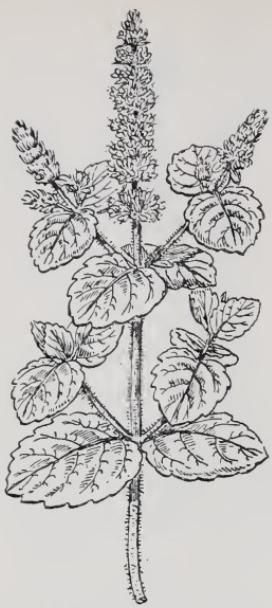


Fig. 488. *MENTHA ROTUNDIFOLIA*.



Fig. 489. *MENTHA PIPERITA*.



Fig. 490. *MENTHA HIRSUTA*.



Fig. 491. *MENTHA SATIVA*.

C. About Hoylake (H.); West Kirby (Mrs. S. B.). About Raby and Neston; about Sutton; between Bebington and Trafalgar (D.). Roadside at Newton; corner of Rake Lane, Dunham-on-the-Hill (F.M.W.). 1883, Caldy (E.D.). 1875, Capenhurst; 1883, Great Meols; Heath Lane, Stoke; 1884, Burton; Shotwick (R.B.). West Kirby (A.K.B.). Heswall (Dr. G.).

LABIATÆ.

Mentha (L.). Mint.

M. rotundifolia (L.). *Fig. 488.* Round-leaved Mint. Casual. P. VIII, IX.

Watery places. Rare.

C. 1894, Langfields, West Kirby (Dr. G.; A.K.B.). 1901, Meols village (Dr. G.).

M. piperita (Huds.). *Fig. 489.* Peppermint. Native. P. VII, VIII.

Damp places. Occasional.

L. Near Gill Moss Chapel (D.). In Bath Wood, Ormskirk (T.W.). There are no recent records from L.

C. Mollington (H.S.F.). S. U. Canal at Backford (Dr. G.). Roadside between Thingwall and Irby, var. *a. officinalis* (Hull); Ditch between Dunkirk Farm and Capenhurst, var. *b. vulgaris* (Sole) (F.M.W.). In Capenhurst and extending W. to half a mile from Willaston; Lane leading to Lydiate; by the brook at Shotwick (R.B.). Roadside from Puddington towards the New House Farm (Rev. G.). Between Ince and Wimbold's Trafford (Miss W.).

NOTE.—Intermediate states between *a. officinalis* and *b. vulgaris* are frequent.

M. hirsuta (L.). *Fig. 490.* Hairy Water Mint. Native. P. VII, VIII.

(*M. aquatica* (L.).)

In ditches, and also in damp hollows among the sandhills. Common.

M. sativa (L.). *Fig. 491.* Marsh Whorled Mint. Native. P. VII, VIII.

In wet places. Frequent.

L. Banks of Leeds Canal, N. of Liverpool, &c.

C. One mile N. of Willaston; in S. U. Canal, &c.

M. rubra (Sm.). *Fig. 492.* Red-veined Mint. Native. P. VII, VIII.

Damp places. Rare.

L. W. bank of the Canal between Maghull and Lydiate, nearly opposite Lydiate House (R.B.).

C. Formerly found in Eastham Woods (H.S.F.). 1896, Bank of S. U. Canal at Mollington (Dr. G.).

M. arvensis (*L.*). *Fig. 493.* Corn Mint. Native. P. VII-IX.
In cultivated fields. Common.

M. Pulegium (*L.*). Pennyroyal. Casual. *P. VIII, IX.

Heathy and sandy ground. Very rare.

L. Sept., 1851, Newton Common, plentiful (D.). There is no recent record.

Authorities for Menia—J. G. Baker and Rev. E. F. Linton.

***Lycopus* (*L.*). Gipsywort.**

L. europaeus (*L.*). *Fig. 494.* Water Horehound or Gipsywort. Native. P. VII, VIII.

In ditches and by the sides of ponds. Frequent.

L. Formby; Halsall.

C. Woodchurch; Great Meols; Ponds S. of Noctorum; Heswall; Mollington; Backford.

***Origanum* (*L.*). Marjoram.**

O. vulgare (*L.*). *Fig. 495.* Marjoram. Native. P. VIII.

Hedge banks. Very rare.

L. Between Buckley Hill School and Sefton Church (D.), (?) extinct. Mill Lane, between Aughton and Birch's Brow, probably of garden origin (R.B.).

C. Roadside between Eastham and Hooton Park (J.S.). Lane near the Lodge Farm House, between Great Saughall and Shotwick, a doubtful native (F.M.W.; W.W.H.). 1901, Roadside five miles from Chester towards Neston (Dr. G.).

F. Dee Cop about a mile below Chester (E.D.).

***Thymus* (*L.*). Thyme.**

T. Serpyllum (*Fr.*). *Fig. 496.* Wild Thyme. Native. P. VI-VIII.
The sandhills. Very Common. Inland on banks, heaths, and rocks. Frequent.

T. Chamaedrys (*Fr.*). Larger Wild Thyme. Native. P. VI-VIII.

C. Sandy ground near the shore below West Kirby Church (F.M.W.), (?) extinct.



Fig. 492. MENTHA RUBRA.



Fig. 493. MENTHA ARVENSIS.



Fig. 494 LYCOPUS EUROPÆUS



Fig. 495. ORIGANUM VULGARE.



Fig. 496. *THYMUS SERPYLLUM*.



Fig. 497. *CALAMINTHA CLINOPODIUM*.



Fig. 498. *CALAMINTHA ARVENSIS*.



Fig. 499. *CALAMINTHA OFFICINALIS*.

Calamintha (Moench.). Calamint.

C. Clinopodium (Benth.). *Fig. 497.* Wild Basil. Native. P. VI-VIII.

Overgrown hedge and ditch banks. Occasional in C. Rare in L.

L. River bank near Speke Hall; Hale Dam Wood (D.).

C. Bushy banks by Bromborough Pool (D.). Near Hooton by roadside towards Parkgate; Lane side leading W. from Bromborough Station; between Mollington Station and Backford (F.M.W.). Ledsham to Shotwick; Stoke; Whitby; Great Saughall (Dr. G.). Between Moston Bridge and Little Sutton (Lord de T.).

C. arvensis (Lam.). *Fig. 498.* Basil. Colonist. P. VII, VIII.

C. Acinos (Clairv.).

Dry gravelly places. Very rare.

F. River side of the Dee Cop about a mile below Chester (E.D.). 1901, confirmed (Dr. G.).

C. officinalis (Mænch.). *Fig. 499.* Calamint. Native. P. VII-IX.

Dry banks. Very rare.

L. Near Garston (H.). Near Ditton (Miss G.).

C. Near Bromborough (D.).

There is no recent record.

Salvia (L.). Sage.

S. Verbenaca (L.). *Fig. 500.* English Clary. Native. P. VI-VIII.

Dry gravelly banks. Very rare.

C. About West Kirby (D.). 1894, confirmed (A.K.B.). Lane from Denhall towards Burton (R.B.), there in 1901.

Nepeta (L.).

N. Cataria (L.). *Fig. 501.* Cat Mint. Native. P. VII, VIII.

Dry banks and borders of fields. Rare.

L. 1901, Canal banks, Aintree (J.A.W.).

C. Sutton Bridge, Frodsham (D.). Near Mollington (H.S.F.). 1892, E. of Burton (Miss W.).

F. 1901, Dee Cop, one mile below Chester (Dr. G.).

N. Glechoma (Benth.). *Fig. 502.* Ground Ivy. Native. P. IV-VI.

Hedge banks and moist shady places. Very common.

Scutellaria (L.). Skullcap.

S. galericulata (L.). *Fig. 503.* Greater Skullcap. Native. P. VII-IX.

Banks of ditches and in swampy ground. Occasional.

L. Southport; Crosby and Formby sandhills (D.). Sefton Meadows. Netherton (H.S.F.). Several places around Hightown (F.M.W.; &c.). Between Clubmoor and Anfield Cemetery; Speke shore (J.H.L.). Ditches about Hale; by canal opposite Lydiate House; margin of brook at Cartbridge, between Tarbuck and Halewood; margin of large lake in Knowsley Park (R.B.). Above the Mill Dam at Kirkby (Mrs. w.).

C. Upper part of Bromborough Pool (D.). Bidston Marsh (H.S.F.). In the Fender, near the footpath towards Woodchurch (F.M.W.). Frodsham Marsh (J.F.R.). Wood adjoining the old bathing house near Hooton Hall (F.M.W.; R.B.), (?) if still there—the M. Ship Canal now runs along the bottom of this wood. Ditch close to Leasowe Station; near Ellesmere Port; S. U. Canal at Mollington; E. end of Dibbinsdale (Dr. G.).

S. minor (L.). *Fig. 504.* Lesser Skullcap. Native. P. VII-IX. On boggy heaths and by water. Rare.

L. Formby (T. Glover). Side of a pit at Knowsley (F.P.M.).

C. Ditch on Thurstaston Heath (F.M.W.; &c.); there in 1901. Ditch in W. edge of Oxton Heath (F.M.W.), (?) extinct. Heswall Heath (F.P.M.). Moor near Frodsham (J.F.R.).

Prunella (L.). Selfheal.

P. vulgaris (L.). *Fig. 505.* Selfheal. Native. P. VI-IX.

Nearly everywhere.

Marrubium (L.). White Horehound.

M. vulgare (L.). *Fig. 506.* White Horehound. Native or Denizen. P. VIII, IX.

In waste places, generally near villages. Occasional.

L. Southport (D.). Waste ground close to Hightown Station; near Little Brighton—a garden escape (F.M.W.).

C. Sandhills at New Brighton (Miss C. G.; Mrs. S. B.). Hoylake Golf Links (Lord de T.). Rocky places around Wallasey Church (w.h.). Roadside W. of Caldy—a garden escape (F.M.W.). Between Greasby and Irby Windmill; Sandhills near Dove Point, Meols (R.B.). Near New House Farm, between Badgers Rake and Puddington (Rev. G.; R.B.). At Capenhurst; on the shore at Denhall; Burton Village (Dr. G.). Burton Rocks (A.K.B.).

Stachys (L.). Woundwort.

S. Betonica (Benth.). *Fig. 507.* Wood Betony. Native. P. VII, VIII.

Copse, hedge banks, &c. Frequent in C., less so in L.

C. Oxton; Wallasey; Meols; Newton; Bromborough; Mollington; Stoke.

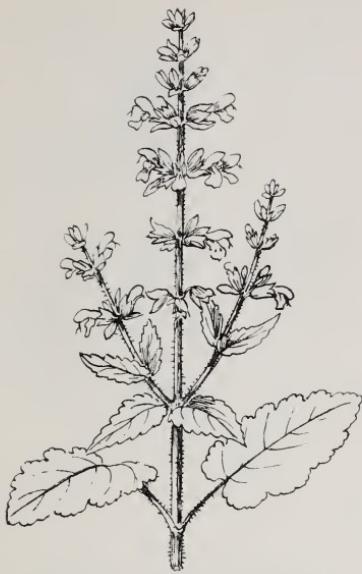


Fig. 500. *SALVIA VERBENACA.*

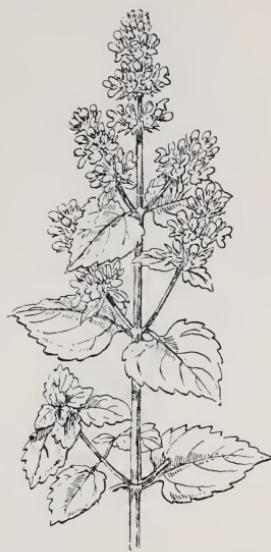


Fig. 501. *NEPETA CATARIA.*



Fig. 502. *NEPETA GLECHOMA.*



Fig. 503. *SCUTELLARIA GALERICULATA.*



Fig. 504. *SCUTELLARIA MINOR.*



Fig. 505. *PRUNELLA VULGARIS.*



Fig. 506. *MARRUBIUM VULGARE.*



Fig. 507. *STACHYS BETONICA.*

S. palustris (L.). Marsh Woundwort. Native. P. VII-IX.

Ditches and watery places. Frequent.

L. Formby to Halsall.

C. Oxton; Wallasey; Great Meols; Spital; West Kirby; Stoke.

S. ambigua (Sm.). *Fig. 508.* Intermediate Woundwort. Native. P. VII, VIII.

C. 1872, several places between Thornton Hough and Parkgate (F.M.W.). 1896, confirmed (Dr. G.). 1898, upper end of Barnston Dell (Dr. G.).

NOTE.—This plant is now considered to be a hybrid between *S. palustris* and *S. sylvatica*.

S. sylvatica (L.). *Fig. 509.* Hedge Woundwort. Native. P. VII-IX.

In woods and shady places. Common.

S. arvensis (L.). *Fig. 510.* Corn Woundwort. Native. A. or B. VII-IX.

In both cultivated and waste ground. Frequent.

L. Aigburth; Ormskirk.

C. Oxton; Meols; Parkgate; Pensby; Little Neston; Wilaston.

S. annua (L.).

L. 1892, as a casual on Aintree Racecourse (J.A.W.).

Galeopsis (L.). Hemp Nettle.

G. Ladanum (L.). *Fig. 511.* Colonist. A. VII-IX.

Waste places. Very rare.

L. Frequent in gravelly places about Mill Bank, West Derby (D.). As a casual on waste ground adjoining the W. Dock at Garston (R.D.B.).

C. 1871, Roadside at Neston (old) Railway Station (H.S.F.). 1879, there still (Lord de T.).

G. Tetrahit (L.). *Fig. 512.* Hemp Nettle. Native. A. VII-IX.

Cultivated fields, hedge banks, &c. Common.

b. bifida (Boenn.).

Has been observed in the district.

G. speciosa (Mill). *Fig. 513.* Large-flowered Hemp Nettle. Colonist. A. VII-IX.

(*G. versicolor (Curt.).*)

In cultivated fields. Rare.

L. West Derby (w.s.; &c.). Southport; near Simmonswood

Moss (D.). St. Helens Junction (J.H.L.). 1873, between Lydiate Church and Frith Bridge; between Altcar and Hill House; close to N. side of Barton Station (R.B.). Near Carr Plantation, Lydiate (Miss E. J.).

C. In cornfields between Woodside and Parkgate; about Sutton Hall (H.). In cornfields at Ford (D.). About Frodsham (J.F.R.). No recent records from C.

NOTE.—Is most frequently found growing in potato fields.

***Leonurus* (L.). Motherwort.**

L. Cardiaca (L.). *Fig. 514.* Motherwort. Denizen. P. VIII.

L. A few specimens have been occasionally found about Southport, and once near Simmonswood, but it has no claim to be considered native.

***Lamium* (L.). Dead Nettle.**

L. amplexicaule (L.). *Fig. 515.* Henbit Dead Nettle. Native. A. V-VIII.

In both cultivated and waste ground and the sandhills. Frequent.

L. Speke; Hightown.

C. Meols; West Kirby; Ness Holt.

L. intermedium (Fr.).

L. 1899, as a casual, roadside at Ince Blundell (J.A.W.).

L. hybridum (Vill.). Cut-leaved Dead Nettle. Native. A. IV-VI.

(*L. incisum* (Willd.))

In both cultivated and waste ground. Occasional.

L. Speke.

C. Caldy.

L. purpureum (L.). *Fig. 516.* Red Dead Nettle. Native. A. IV-X.

In waste places, hedge banks, &c. Common.

b. decipiens (Sonder.).

Is probably frequent in the district (H.S.F.). (?) Flora Committee, 1893.

L. maculatum (L.). *Fig. 517.* Spotted Dead Nettle. Alien. P. VI-VIII.

Hedge banks, &c., as an escape from cultivation. Occasional.

L. Hedge bank and adjoining fringe of wood in Allerton Road (R.B.).

C. Waste ground in Capenhurst (R.B.). Ditch sides of Brackenwood, below S. end of Storeton Hill, near Clatterbridge; 1901, Pass of Thermopylæ, Bidston Hill, as an escape; 1902, waste ground off Waterpark Road, Prenton (Dr. G.).



Fig. 508. STACHYS AMBIGUA.



Fig. 509. STACHYS SYLVATICA.

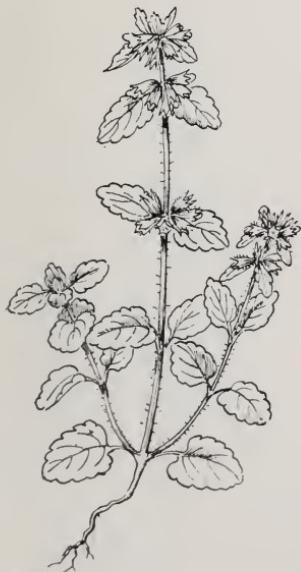


Fig. 510. STACHYS ARVENSIS.

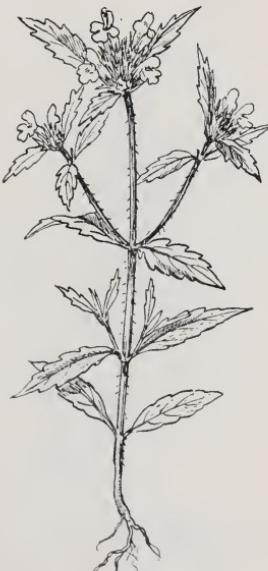


Fig. 511. GALEOPSIS LADANUM.



Fig. 512. *GALEOPSIS TETRAHIT.*



Fig. 513. *GALEOPSIS SPECIOSA.*



Fig. 514. *LEONURUS CARDIACA.*



Fig. 515. *LAMIUM AMPLEXICAULE.*



Fig. 516. LAMIUM PURPUREUM.



Fig. 517. LAMIUM MACULATUM.



Fig. 518. LAMIUM ALBUM.



Fig. 519. LAMIUM GALEOBDOLON.



Fig. 520. *BALLOTA NIGRA.*



Fig. 521. *TEUCRIUM SCORODONIA.*



Fig. 522. *AJUGA REPTANS.*



Fig. 523. *PLANTAGO MEDIA.*

L. album (*L.*). *Fig. 518.* White Dead Nettle. Native. P. V-VIII.

Ditch banks, waste places, &c. Occasional.

L. Near Walton Church (*H.*). Southport; Crosby; Aigburth; Field near Aintree racecourse; Roadsides near Gill Moss Chapel, and near Croxteth Hall; Ditch bank, West Derby (*D.*). Upholland (Field Club). Billinge (*H.S.F.*). Kirkby (*T.G.*). 1884, Lane at back of Lee Hall, between Gateacre and Little Woolton; Banks of River Alt by Dunning's Bridge (*R.B.*).

C. About Eastham (*H.*). Bromborough (Miss C. G.). Frodsham (*J.F.R.*). Irby, (?) extinct; Puddington (Miss W.). Road-side at Whitehouse, half-way between Barnston and Thornton Hough; border of field at Bidston Ford (*Dr. G.*).

L. Galeobdolon (*Crantz.*). *Fig. 519.* Yellow Dead Nettle. Native. P. V-VII.

In woods, very rare.

C. Aston Wood (*D.*). Rock Savage Woods (*J.F.R.*).

Ballota (*L.*). Black Horehound.

B. nigra (*L.*). *Fig. 520.* Black Horehound. Native. P. VII, VIII.

Hedge banks and waste places. Common.

b. alba (*L.*).

1894, Field off Darmond's Green, West Kirby (*Dr. G.*).

Teucrium (*L.*). Wood Sage.

T. Scordonia (*L.*). *Fig. 521.* Wood Sage. Native. P. VII, VIII.

Dry heathy and rocky places. Common.

Ajuga (*L.*). Bugle.

A. reptans (*L.*) *Fig. 522.* Bugle. Native. P. V, VI.

Damp hedge banks, woods, &c. Frequent.

L. Dungeon.

C. Frodsham; Bromborough; Shotwick.

PLANTAGINEÆ.

Plantago (*L.*). Plantain.

P. major (*L.*). Greater Plantain. Native. P. VI-IX.

Waste places, &c. Very common.

b. intermedia (*Gilib.*).

Roadsides and waste places. Frequent.

P. media (*L.*). *Fig. 523.* Hoary Plantain. Colonist. P. VI-IX. Fields, hedge banks, &c. Very rare.

L. Knowsley Park (*D.*). Croxteth Hall grounds, probably introduced with grass seeds (*F.M.W.*).

C. Hilbre (*F.P.M.*). Field off Woodchurch Road; Eastham (*Mrs. F. B.*). 1896, Field adjoining Hooton Station, E. side (*Dr. G.*).

P. lanceolata (*L.*). Ribwort Plantain. Native. B. or P. IV-IX. Fields, roadsides, &c. Very common.

P. maritima (*L.*). *Fig. 524.* Sea Plantain. Native. P. VI-IX. Along the coast. Frequent.

P. Coronopus (*L.*). *Fig. 525.* Buckshorn Plantain. Native. B. V-IX.

Gravelly places near the coast, frequent. Inland, occasional.

C. Irby Hill (*Dr. G.*).

P. arenaria (*W. & Kit.*). *Fig. 526.*

L. As a casual at Hightown (*c.b.*). 1901, Formby (*R.C.*).

Littorella (*L.*). Shoreweed.

L. lacustris (*L.*). *Fig. 527.* Shoreweed. Native. P. VI-IX.

Damp stony and sandy places. Rare.

L. Crosby Marsh (*W.*). Formby to Southport (*D.*). Margin of the large lake in Knowsley Park (*R.B.*).

C. Damp places on Bidston Hill (*W.*). Border of a pond near Oxton (*H.*). Heswall Hill (*D.*). Thurstaston Common, abundantly (*H.S.F.*). Banks of a pond near Frodsham (*J.F.R.*).

NOTE.—Probably gone from Oxton and Bidston Hill.

ILLECEBRACEÆ.

Scleranthus (*L.*). Knawel.

S. annuus (*L.*). *Fig. 528.* Knawel or Knapwell. Native. A. VI-VIII.

Fields and waste places. Occasional.

L. Hale. Speke.

C. West Kirby. Irby; Grange Hill; Ness; Eastham; above Barnston Dale (*Dr. G.*).



Fig. 524. PLANTAGO MARITIMA.



Fig. 525. PLANTAGO CORONOPUS.



Fig. 526. PLANTAGO ARENARIA.



Fig. 527. LITTORELLA LACUSTRIS.



Fig. 528. *SCLERANTHUS ANNUUS.*



Fig. 529. *AMARANTHUS BLITUM.*



Fig. 530.
CHENOPODIUM VULVARIA.



Fig. 531.
CHENOPODIUM ALBUM.



Fig. 532.
CHENOPODIUM MURALE.

Division IV.—Monochlamydeæ.

AMARANTACEÆ.

Amaranthus (*L.*). Amaranth.

A. retroflexus (*L.*). Casual. A. VIII.

L. Canal banks at Aintree (R.B.).

C. About the Birkenhead Docks (W. H. Holt).

A. Blitum. *Fig. 529.*

L. 1893, as a casual on Canal bank at Maghull. 1899,
Manure heap, near Aintree (J.A.W.).

C. 1894, among ballast on road bridge over railway, W. of
Bidston (Dr. G.).

CHENOPODIACEÆ.

Chenopodium (*L.*). Goosefoot.

C. Vulvaria (*L.*). *Fig. 530.* Stinking Goosefoot. Casual. A.
VIII, IX.

Dry waste places near houses. Rare.

L. 1893, &c., Canal bank, Aintree (J.A.W.).

C. About Birkenhead; Egremont; Seacombe (H.S.F.; R.B.).

C. album (*L.*). *Fig. 531.* White Goosefoot or Fat Hen. Native.
A. VII, VIII.

Waste places. Very common.

a. candidans (*Lam.*).

Waste places. Frequent.

L. Sands near Waterloo (D.). Speke (J.H.L.).

C. Wallasey (Mrs. F. B.). Seacombe (J.H.L.). 1892, Meols
(Dr. G.).

b. viride (*L.*).

Cultivated land. Common.

L. 1890, Aintree (J.A.W.).

C. 1898, Burton (Dr. G.).

c. paganum (*Reichb.*).

Roadsides and waste places. Frequent.

C. 1898, in a field at Pensby (Dr. G.).

C. opulifolium (Schrad.).

- L. 1891, as a casual at Walton and Aintree (J.A.W.).
 C. 1892, Birkenhead Docks (J.A.W.).

C. ficifolium (Sm.).

- L. 1896-1901, as a casual about the canal at Aintree (J.A.W.).

C. murale (L.). Fig. 532. Sowbane. Native. A. VIII.

Waste ground, chiefly near houses. Occasional.

L. Near Speke (J.S.). Near Altcar Rifle Range (H.C.). 1891, Aintree (J.A.W.).

C. Parkgate shore (D.). Near Backwood Hall, near Parkgate (Field Club). Seacombe, as a ballast plant; by the gas works at Hoylake; lane at Gt. Meols; S. end of Little Neston (R.B.).

C. hybridum (L.). Maple-leaved Goosefoot. Native. A. VIII.

Waste places. Very rare.

L. Bath Farm, near Ormskirk (T.W.).

NOTE.—There are no recent records.

C. urbicum.

L. 1901, as a casual at Aintree (J.A.W.).

C. rubrum (L.). Fig. 533. Red Goosefoot. Native. A. VIII, IX.

Waste places. Frequent.

L. In New Cut Lane about half-way between Birkdale and Halsall; Banks of R. Alt, opposite the Rifle Range, a prostrate state, with very fleshy leaves, approaching *pseudo-botryoides*, (H. C. Wats.); abundant by a large pond in Ackers Lane, near Lydiate (R.B.). 1891, Aintree (J.A.W.).

C. Just below Shotwick Church; junction of Rake Lane and Hob Lane, W. of Dunham on the Hill (F.M.W.; W.W.N.). Roadside opposite Poole Hall, Netherpool; Roadside between Irby Windmill and Arrowe Brook; Ditches between Plemstall and Little Barrow (R.B.). Bidston Village; Burton Point (Dr. G.).

C. glaucum (L.). Casual. A. IX.

C. 1871-2, waste ground opposite Dock Walls, Birkenhead (R.B.).

C. Bonus-Henricus (L.). Fig. 534. All-Good. Good-King-Henry. Native. P. V-VIII.

Waste places, chiefly near houses. Frequent.

L. Halsall.

C. Weston; Bidston; Wallasey; Nessholt; Capenhurst (Dr. G.).

Authority for Chenopodium, A. Bennett.



Fig. 533. CHENOPODIUM RUBRUM.



Fig. 534. CHENOPODIUM BONUS-HENRICUS.



Fig. 535. ATRIPLEX LITTORALIS.



Fig. 536. ATRIPLEX PATULA.



Fig. 537. ATRIPLEX DELTOIDEA.



Fig. 538. ATRIPLEX BABINGTONII.



Fig. 539. ATRIPLEX PORTULACOIDES.



Fig. 540. SALICORNIA HERBACEA.

Atriplex (L.). Orache.

A. littoralis (L.). *Fig. 535.* Grass-leaved Sea Orache. Native.
A. VII-IX.

Salt marshes. Rare.

L. Southport (D.).

C. Egremont (H.S.F.). Near Eastham (D.). Bromborough Pool (W.H. Holt). On Macdona's sea wall, West Kirby (R.B.).

A. patula (L.). *Fig. 536.* Dark Green Orache. Native. A. VII-X.

Cultivated and waste land. Common.

b. erecta (Huds.).

L. 1894, Walton; Aintree (J.A.W.).

A. hastata (L.). Spear-leaved Orache. Native. A. VI-X.

Cultivated and waste ground. Rare.

L. Aigburth shore (w.s.).

C. On the coast half-mile N. of Parkgate; mud banks on Frodsham shore (Lord de T.).

A. deltoidea (Bab.). *Fig. 537.* Triangular-leaved Orache. Native.
A. VI-X.

Muddy places about the R. Mersey. Locally common.

L. 1901, Canal bank at Aintree (J.A.W.).

C. Bromborough Pool; near mouth of R. Gowey (Dr. G.).

b. prostrata (Bab.).

L. 1897, mouth of the R. Alt (J.A.W.).

C. Shore at Dawpool (Dr. G.).

A. Babingtonii (Woods). *Fig. 538.* Babington's Orache. Native.
A. VII-X.

On the coast. Frequent.

C. Leasowe (Dr. G.).

A. laciniata (L.). Frosted Sea Orache. Native. A. VII-IX.

(*A. farinosa* (Dum.).)

On the coast. Occasional.

L. Formby to Southport (D.).

C. 1865, one plant gathered from a breakwater quarter-mile N. of Hoylake (Lord de T.).

NOTE.—Not recorded since.

A. portulacoides (L.). *Fig. 539.* Sea Purslane. Native. P. VIII-X.

Muddy places along the coast. Occasional.

C. About Bromborough Pool and the Eastham shore.

F. Queensferry (Dr. G.).

Authority for Atriplex, A. Bennett.

Salicornia (L.). Glasswort.

S. herbacea (L.). *Fig. 540.* Glasswort. Native. A. VIII, IX.

Muddy places along the coast. Frequent.

C. Bromborough Pool; Shotwick and Burton Marshes.

Suaeda (Forsk.). Sea Blite.

S. maritima (Dum.). *Fig. 541.* Sea Blite. Native. A. VII-IX.

Muddy places along the coast, and among the sandhills. Frequent.

L. Birkdale. Dungeon.

C. Bromborough Pool; West Kirby; Parkgate; Burton Marshes.

b. procumbens (Sm.). Has been met with among the sandhills.

Salsola (L.). Saltwort.

S. Kali (L.). *Fig. 542.* Prickly Saltwort. Native. A. VIII.

Sandy shore from the Dee to Southport. Common.

C. Wallasey to West Kirby, and along Dee side.

POLYGONACEÆ.

Polygonum (L.).

P. Convolvulus (L.). *Fig. 543.* Black Bindweed. Native. A. VII-IX.

In both cultivated and waste ground. Common.

b. pseudo-demetorum (H. C. Watson).

Frequent.

P. aviculare (L.). Knotgrass. Native. A. V-IX.

Waste places inland, and along the shore. Very common.

NOTE.—All the states mentioned in the London Catalogue have been noted in the district.

P. Roberti (Loisel.). Sea Knotgrass. Native. A. or P. VIII, IX.



Fig. 541. SUÆDA MARITIMA.



Fig. 542. SALSOLA KALI.



Fig. 543. POLYGONUM CONVOLVULUS.



Fig. 544. POLYGONUM HYDROPIPER.



Fig. 545. *POLYGONUM LAPATHIFOLIUM*.



Fig. 546. *POLYGONUM AMPHIBIUM*.



Fig. 547. *POLYGONUM BISTORTA*.



Fig. 548. *FAGOPYRUM ESCULENTUM*.

(P. Rait (Bab.).)

Sandy sea shores. Very rare.

L. Crosby (D.). Southport (J.H.L.).

C. Shore at Dawpool, at Parkgate, and at Heswall (F.M.W.). Between Leasowe and New Brighton; on Little Eye, Hilbre (Lord de T.).

P. Hydropiper (L.). Fig. 544. Water Pepper. Native. A. VIII, IX.

Wet places. Common.

P. minus (Huds.). Small Persicaria. Native. A. VIII, IX.

Wet gravelly places. Very rare.

L. Walton Mere (H.S.F.). Side of the road from Simmonswood Moss towards Kirkby (F.M.W.).

C. Bidston Hill; Storeton Quarries (D.). Hoylake (Mrs. F. B.).

P. Persicaria (L.). Spotted Persicaria. Native. A. VI-X.

Damp and waste places. Common.

P. lapathifolium (L.). Fig. 545. White-flowered Persicaria. Native. A. VII-IX.

In cultivated ground and waste places. Common.

C. Hooton; Pensby; Burton.

P. amphibium (L.). Fig. 546. Amphibious Persicaria. Native. P. VII-IX.

Watery places. Frequent.

L. Liverpool and Leeds Canal.

C. Meols; West Kirby; &c.

b. terrestre (Leers.).

On boggy or even dry ground. Occasional.

P. Bistorta (L.). Fig. 547. Bistort or Snakeweed. Native. P. VI and X.

Woods and damp fields. Occasional.

L. Fazakerley; S.E. of Roby Village; in woods between Croxteth and Knowsley (D.). Rough dales, near Rainhill (H.S.F.). N.E. side of Billinge Hill; in several places about Hunts Cross, Garston, and Halewood; Railway bank E. of Rainford Junction; by the brook between Orrell Station and Upholland (R.B.). Lathom.

C. Claughton (F.M.W.). Field off Park Road West, Birkenhead; Dibbinsdale (Dr. G.). Capenhurst; Woodhouses (J.F.R.).

Fagopyrum (*Gaert.*). Buckwheat.

- F. esculentum** (*Moench.*). *Fig. 548.* Buckwheat. Casual. A. A. VII, VIII.

Rubbish heaps by the docks and canal. Occasional.

L. Garston (R.B.). 1881, Birkdale sandhills (Dr. G.).

C. Birkenhead Docks (R.B.)

Rumex (*L.*). Dock.

- R. conglomeratus** (*Murr.*). Sharp Dock. Native. P. VI-VIII.

Damp places. Frequent.

L. Hale; Woolton.

C. Bebington; Hooton; Shotwick.

F. Nant-y-Flint; Mostyn.

- R. sanguineus** (*L.*). *Fig. 549.* Red-veined Dock. Native. P. VI-VIII.

Woods and shady places. Occasional.

L. Ince Blundell (D.). Speke (J.H.L.). Near Southport (J.G.).

C. Bromborough (J.H.L.). Near Parkgate Station; Roadside between Stoke and Little Stanney (Lord de T.; F.M.W.).

F. Nant y Flint; behind Bagillt; behind Fynnon Groew (R.B.).

- b. viridis* (*Sibth.*). Green-veined Dock. Native.

Woods and shady places. Very rare.

L. Near Ormskirk (T.W.).

C. 1897, near Mollington (Dr. G.).

- R. maritimus** (*L.*). *Fig. 550.* Golden Dock. Native. P. or B. VII, VIII.

In brackish water and in ditches on boggy land. Rare.

L. Southport (D.). In several places about Hightown, R. Alt, Formby, Barton and Halsall (R.B., &c.).

C. 1894, Leasowe to Meols (Dr. G.). Hoylake (J.S.). Marshy field near West Kirby (Mrs. S. B.).

- R. obtusifolius** (*L.*). Broad-leaved Dock. Native. P. VII-IX.

Roadsides and waste places. Very common.

- R. acutus** (*L.*). Meadow Dock. Native. P. VI-IX.

- (*R. pratensis* (*Mart. & Koch.*))

Roadsides, fields, &c. Occasional.

L. Roadside about half-way between Maghull Station and Melling; under Ashurst Beacon, between Ashurst Hall and Dalton Common (R.B.).



Fig. 549. RUMEX SANGUINEUS.



Fig. 550. RUMEX MARITIMUS.



Fig. 551. RUMEX CRISPUS.



Fig. 552. RUMEX HYDROLAPATHUM.



Fig. 553.
RUMEX ACETOSELLA



Fig. 554.
HIPPOPHAE RHAMNOIDES



Fig. 555.
EUPHORBIA HELIOSCOPENA



Fig. 556.
EUPHORBIA PARALIAS.



Fig. 557.
EUPHORBIA PORTLANDICA.



Fig. 558.
EUPHORBIA EXIGUA.

C. Near the bridge just below Shotwick Church; near Horns Mill, Alvanley; about Ledsham (F.M.W.). In an orchard S. end of Little Neston; several places about Parkgate (Lord de T.).

R. *crispus* (L.). *Fig. 551.* Curled Dock. Native. P. VI-VIII. Roadsides and waste places, especially near the sea. Very common.

R. *Hydrocharis* (*Huds.*). *Fig. 552.* Great Water Dock. Native. P. VII, VIII.

In ditches and the sides of ponds. Occasional.

L. Formby marsh and Southport (D.). By the outlet of a stream on the Speke shore (F.M.W.). Many places around Formby; Pond on E. side of railway between Sefton and Lydiate (R.B.).

C. Ditches on Bidston Marsh, Leasowe, and in the Lang-fields, West Kirby (F.M.W.; H.S.F.). S. U. Canal from Ellesmere Port to Mollington (Lord de T.). Wimbolds Trafford (Miss W.). Pond below railway station, Dunham-on-the-Hill; between Stanney Mill and Ince; Pond between Great and Little Sutton; Ponds between Little Barrow and Plemstall, and extending towards Plemstall (R.B.). In R. Gowey, near Stoke (Dr. G.).

R. *Acetosa* (L.). Sorrel. Native. P. IV-VII. Meadows, hedge banks, &c. Common.

R. *Acetosella* (L.). *Fig. 553.* Sheeps Sorrel. Native. P. IV-VI. Dry fields and waste places. Very common.

Authority for Rumex, W. H. Beeby.

THYMELÆACEÆ.

Daphne (L.). Spurge Laurel.

D. *Laureola* (L.). Spurge Laurel. Denizen. Shrub. II-IV. Woods, hedges, &c. Very rare.

L. Banks of the Mersey near the Decoy, Hale, and near Halewood (D.).

NOTE.—There is no recent record.

ELÆAGNACEÆ.

Hippophae (L.). Sea Buckthorn.

H. *rhamnoides* (L.). *Fig. 554.* Sea Buckthorn. Denizen. Shrub. IV, V.

Near the shore. Very rare.

L. 1901, Lane leading towards the sandhills from Freshfield, planted from seed obtained in Scotland (R.C.).

C. Woods by the shore at Hooton, probably introduced (Rev. H.; F.P.M.).

NOTE.—It has not been seen here for many years. The Manchester Ship Canal now cuts through this old station.

LORANTHACEÆ.

Viscum (*L.*). Mistletoe.

V. album (*L.*). The Mistletoe. Denizen. Shrub. III, IV.

Upon Apple Trees. Occasionally introduced into gardens, as at "Fearnhead," Great Crosby, in L. (Dr. G.).

EUPHORBIACEÆ.

Euphorbia (*L.*). Spurge.

E. Helioscopia (*L.*). *Fig. 555.* Sun Spurge. Native. A. VI-IX. In both cultivated and waste ground. Common.

E. Cyparissias (*L.*).

1895, appeared as a casual among garden rubbish near Prenton, in C. (Dr. G.).

E. Paralias (*L.*). *Fig. 556.* Sea Spurge. Native. P. VIII-IX.

On the sandhills. Frequent at intervals.

L. Between Formby and Southport (W.). Blundellsands (R.B.).

C. Dee shore below Caldy; Heswall (D.). Hoylake (R.B.).

F. Sandhills at the Point of Air (R.B.).

E. Portlandica (*L.*). *Fig. 557.* Portland Spurge. Native. P. IV-IX.

On the sandhills. Frequent at intervals.

L. Crosby to Southport (D.).

C. Sandhills between Hoylake and West Kirby (E.D.; R.B.).

F. Sandhills at the Point of Air (R.B.).

NOTE.—These last two species are commonly found together where they occur all around the coast.

E. Peplus (*L.*). Petty Spurge. Native. A. VII, VIII.

In both cultivated and waste ground. Common.

E. exigua (*L.*). *Fig. 558.* Dwarf Spurge. Native. A. VI-VIII.

In cultivated fields and roadsides. Frequent.

L. Hale.



Fig. 559. *MERCURIALIS PERENNIS*.



Fig. 560. *MERCURIALIS ANNUA*.



Fig. 561. *ULMUS CAMPESTRIS*.



Fig. 562. *HUMULUS LUPULUS*.



Fig. 563. *URTICA DIOICA*.



Fig. 564. *URTICA PILULIFERA*.

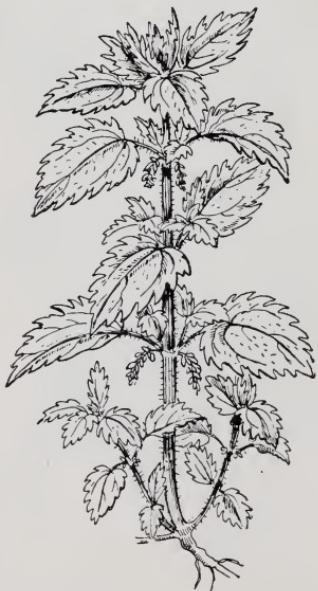


Fig. 565. *URTICA URENS*.



Fig. 566. *PARIETARIA OFFICINALIS*.

C. Newton; Meols; Hoylake to West Kirby; Dawpool; Neston; Parkgate; Heswall; Hooton; Thornton Hough; Denhall.

E. Lathyris (L.). Caper Spurge. Denizen. B. VI, VII.

Woods, fields, &c. Very rare.

L. Cornfields, Sankey Green (c.s.G.).

C. A weed in cultivated land at Frodsham (J.F.R.).

Mercurialis (L.). Mercury.

M. perennis (L.). Fig. 559. Perennial Dog's Mercury. Native. P. IV, V.

Woods and shady places. Common.

NOTE.—Absent from a considerable portion of the district where the land is sandy, or where there is old bog ground.

M. annua (L.). Fig. 560. Annual Dog's Mercury. Casual. A. VIII, IX.

Rubbish heaps by the canal and docks. Rare.

It has been repeatedly found as a ballast plant about the Birkenhead Docks in C., and on the banks of the Liverpool and Leeds Canal; and at Garston, in L., in several places.

URTICACEÆ.

Ulmus (L.). Elm.

U. montana (Sm.). Wych Elm. Denizen. Tree. III, IV.

Plantations and Hedgerows. Common.

U. campestris (Sm.). Fig. 561. Elm. Denizen. Tree. III, IV.

Plantations and Hedgerows. Common.

a. suberosa (Ehrh.). Corky Elm.

Luxuriant about Mollington, and in Hooton Park (Dr. G.).

Humulus (L.). Hop.

H. Lupulus (L.). Fig. 562. Hop. Denizen. P. VII.

Hedges, chiefly near villages. Frequent.

L. Hightown.

C. Noctorum; Arrowe; Newton; Meols; Little Neston; Thurstanston; Shotwick; Backford; Overpool.

F. Dell behind Flint.

Urtica (L.). Nettle.

U. dioica (L.). Fig. 563. Great Nettle. Native. P. VI-IX.

Waste places, roadsides, &c. Very common.

NOTE.—This plant invariably follows the footsteps of man, and seldom, if ever, occurs upon land that has not been cultivated and dwelt upon.

b. angustifolia (Blytt).

C. 1894, Eastham Wood (J.A.W.).

U. pilulifera (L.). *Fig. 564.* Roman Nettle. Casual. A. VI-VIII.

A garden weed, and in waste ground near the docks.

L. 1852, as a weed in the garden at Hale Hall (D.).

C. Among ballast about the Birkenhead Docks (H.S.F.). Hedgeside, Frodsham (J.F.R.).

U. urens (L.). *Fig. 565.* Small Nettle. Native. A. VI-IX.

In sandy, gravelly, and waste places. Common.

Parietaria (L.). Wall-Pellitory.

P. officinalis (L.). *Fig. 566.* Pellitory-of-the-wall. Native. P. VI-IX.

On old walls. Occasional.

L. Old wall near a well under Ashurst Beacon, between Ashurst Hall and Dalton Common; old wall between Lydiate Station and Lydiate House (R.B.). Under a hedge in College Road, between Waterloo and Great Crosby (J.M.).

C. Two places in Bidston village (H.). Bromborough (H.C.). Walls, &c., of West Kirby Church, and here and there towards Grange (Miss C.G.). Wall at Prenton Hall (H.S.F.; F.P.M.). Heath Lane, Stoke; among loose stones by Heswall Point (R.B.). Frodsham (J.F.R.). Hilbre (A.K.B.) Shore at Ness; Caldy; Leasowe; Thingwall; Burton (Dr. G.).

F. Higher Ferry, Deeside (Dr. G.). Cop and bank of River Dee, Queensferry (H.S.F.). Behind Llanerch y Mor (R.B.).

MYRICACEÆ.

Myrica (L.). Sweet Gale.

M. Gale (L.). *Fig. 567.* Bog Myrtle. Native. Shrub. V.

Bogs, moors, &c. Occasional.

L. Near Ince Blundell (H.). Southport; Simmonswood Moss; Formby Marsh (D.). Rainford Moss (H.S.F.). Heathy field adjoining Headbolt Lane, between Ainsdale and Formby Hall (R.B.).

CUPULIFERÆ.

Betula (L.). Birch.

B alba (L.). *Fig. 568.* White Birch. Native. Tree. IV, V.

The mosses, damp woods, and hedgerows. Frequent.

L. Simmonswood; Rainford.

C. Oxton Heath.



Fig. 567. MYRICA GALE.



Fig. 568. BETULA ALBA.



Fig. 569. ALNUS GLUTINOSA.



Fig. 570. CARPINUS BETULUS.



Fig. 571. *CORYLUS AVELLANA*.



Fig. 572. *QUERCUS ROBUR*.



Fig. 573. *CASTANEA SATIVA*.



Fig. 574. *FAGUS SYLVATICA*.

B. glutinosa (*Fr.*). Birch. Native. Tree. IV, V.
Damp woods and hedgerows. Frequent.

Alnus (*Tourn.*). Alder.

A. glutinosa (*L.*). *Fig. 569.* Alder. Native. Tree. III.
Damp woods, hedgerows, and by streams. Common.

Carpinus (*L.*). Hornbeam.

C. Betulus (*L.*). *Fig. 570.* Hornbeam. Denizen. Tree. V.
Damp plantations and hedgerows. Occasional. Most probably always planted.

Corylus (*L.*). Hazel.

C. Avellana (*L.*). *Fig. 571.* Hazel. Native. Tree. III, IV.
Woods and hedgerows. Common.

Quercus (*L.*). Oak.

Q. Robur (*L.*). *Fig. 572.* Oak. Native. Tree. IV, V.
Woods and hedgerows.

a. pedunculata (*Ehrh.*).

Common.

b. intermedia (*D. Don.*).

Occasional.

c. sessiliflora (*Salisb.*).

Frequent.

Castanea (*Tourn.*) Chestnut.

C. sativa (*Mill.*). *Fig. 573.* Sweet Chestnut. Alien. Tree. V.

(*C. vulgaris* (*Lam.*)).

Woods and plantations. Frequent.

C. Eastham to Bromborough; Mollington.

Fagus (*L.*). Beech.

F. sylvatica (*L.*). *Fig. 574.* Beech. Native or Denizen. Tree. III, IV.

Woods and hedgerows. Common.

C. Bromborough to Eastham; Mollington.

SALICINEÆ.

Salix (*L.*). Willow.

S. pentandra (*L.*). *Fig. 575.* Bay-leaved Willow. Native. Tree. V, VI.

Damp places, especially on boggy ground. Occasional.

- L. Formby; Decoy at Hale; Litherland; Ince Blundell (D.).
 North Moss Lane, Formby; Halsall (R.B.).
- C. New Brighton (D.). Between Leasowe and Great Meols
 (Dr. G.).
- S. fragilis (L.).** Crack Willow. Native. Tree. IV, V.
 Damp woods, sides of ditches, &c. Frequent.
- c. *Russelliana* (*Sm.*). Bedford Willow.
 C. Bidston meadows; Gayton (J.H.L.).
- S. alba (L.).** *Fig. 576.* White Willow. Native. Tree. V.
 Damp woods, sides of ditches, &c. Frequent.
 C. Meols. Oxton.
- c. *vitellina* (*L.*).
 Frequent.
- S. triandra (L.).** Almond-leaved Willow. Native or Denizen.
 Tree. IV, V.
 Damp woods. Very rare.
 L. Halewood; Ditton (D.).
- S. purpurea (L.).** *Fig. 577.* Rose Willow. Native. Tree.
 III, IV.
 Damp ground, and in hedgerows on sandy ground. Frequent.
 L. Near Blundellsands; Hightown; Freshfield; Ainsdale
 (R.B.).
- S. rubra (Huds.).** Rose Willow.
- c. *Helix* (*L.*).
 Occasional.
 C. Sutton; Eastham; West Kirby (D.).
- S. viminalis (L.).** *Fig. 578.* Osier. Native. Shrub. IV, V.
 Damp places. Common.
- S. Smithiana (Willd.).** Silky-leaved Osier. Shrub. IV, V.
 Damp places. Very rare.
 L. Hedges at Halewood (D.).
- S. cinerea (L.).** *Fig. 579.* Sallow. Native. Shrub. III, IV.
 Woods, hedges, pond sides, &c. Common.
- b. *aquatica* (*Sm.*).
 Occasional.



Fig. 575. *SALIX PENTANDRA*.



Fig. 576. *SALIX ALBA*.



Fig. 577. *SALIX PURPUREA*.



Fig. 578. *SALIX VIMINALIS*



Fig. 579. *SALIX CINEREA*.



Fig. 580. *SALIX AURITA*.



Fig. 581. *SALIX CAPREA*.



Fig. 582. *SALIX REPENS*.

S. aurita (*L.*). *Fig. 580.* Wrinkled-leaved Sallow. Native. Shrub. IV, V.

Woods, roadsides, &c. Common.

S. Caprea (*L.*). *Fig. 581.* Great Sallow. Native. Tree. IV, V. Woods, hedges, &c. Common.

S. phylicifolia (*L.*). Tea-leaved Sallow. Native. Shrub. IV, V.

c. Weigeliana (*Willd.*).

Sides of ditches. Very rare.

L. Several bushes bordering a ditch by a footpath which leaves the high road at Maghull in the direction of the canal and church.

S. nigricans (*Sm.*) Dark-leaved Sallow. (?) Native. Shrub. IV, V.

Damp places. Very rare.

L. Southport (D.).

S. repens (*L.*). *Fig. 582.* Dwarf Willow. Native. Shrub. IV-VI.

Sandhills. Very common. Heaths, &c. Occasional.

Note.—The varieties *fusca* (*L.*), *prostrata* (*Sm.*), *ascendens* (*Sm.*), *argentea* (*Sm.*), have been noted in the district.

Authority for Salix :—Rev. E. F. Linton.

***Populus* (*L.*). Poplar.**

P. alba (*L.*). *Fig. 583.* White Poplar. Denizen. Tree. IV, V. Woods and hedges. Frequent.

P. canescens (*Sm.*). Grey Poplar. Alien. Tree. IV, V. Plantations, &c. Frequent.

P. tremula (*L.*). *Fig. 584.* Aspen. Native. Tree. IV, V. Woods, boggy ground, &c. Frequent. C. Oxton; Hargreave; &c.

P. nigra (*L.*). *Fig. 585.* Black Poplar. Alien. Tree. IV, V. Woods, hedgerows, &c. Common.

EMPETRACEÆ.

***Empetrum* (*L.*). Crowberry.**

E. nigrum (*L.*). *Fig. 586.* Crowberry. Native. P. V, VI. Moors. Very rare.

L. Fir Rough, Ormskirk (D.).

CERATOPHYLLEÆ.

Ceratophyllum (L.). Hornwort.

C. demersum (L.). *Fig. 587.* Hornwort. Native. P. VI, VII.

Ponds, Ditches, &c. Rare.

L. Formby Marsh; Ditches at Southport (D.). Pond near S. E. end of Sefton Park (J.W.B.). Pond on E. side of the Cheshire Lines Railway below Lydiate Hall, by a footpath towards Carr plantation (T.B.; R.B.). Also in a pond a short distance further N.; Land drain E. of the S. end of Headbolt Lane, between Formby Hall and Ainsdale (R.B.).

C. Helsby (J.F.R.). In the Birket, Leasowe (Dr. G.).

C. submersum (L.). Unarmed Hornwort. Native. P. VI, VII.

Ponds and ditches. Very rare.

L. Altcar Marsh (D.). Southport (T.G.).

Division V.—Gymnospermeæ.

CONIFEREÆ.

Taxus (L.). Yew.

T. baccata (L.). *Fig. 588.* Yew. Denizen. P. IV, V.

Planted in churchyards, and near old mansions. Frequent.

C. "The Old Yew" in Eastham churchyard.

F. Dell behind Flint.

Pinus (L.). Scotch Fir.

P. sylvestris (L.). *Fig. 589.* Scotch Fir. Denizen. P. V, VI.

Planted in woods, hedgerows, &c. Frequent.

C. Bidston Hill; Shotwick Dale, &c.

Larix (L.). Larch.

L. europaea (L.). *Fig. 590.* Larch. Denizen. Tree. IV.

A native of N. Europe. It is often found planted in woods on both sides of the River Mersey.



Fig. 583. *POPULUS ALBA*.



Fig. 584. *POPULUS TREMULA*.



Fig. 585. *POPULUS NIGRA*.



Fig. 586. *EMPETRUM NIGRUM*.



Fig. 587. *CERATOPHYLLUM DEMERSUM.*



Fig. 588. *TOXUS BACCATA.*

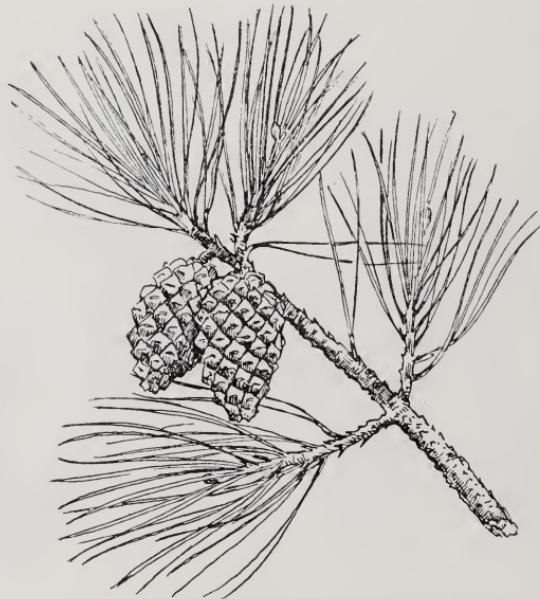


Fig. 589. *PINUS SYLVESTRIS.*

Class II.—MONOCOTYLEDONES.

Floridæ.

HYDROCHARIDEÆ.

Elodea (Rich.). Water Thyme.

E. canadensis (Mich.). *Fig. 591.* Water Thyme. Colonist. P. VII-IX.

(*Anacharis Alsinastrum* (Bab.))

Ponds and ditches. Frequent.

L. Wavertree (j.s.). Water courses by Sefton Meadows (F.M.W.). Frequent in the canals, sluggish brooks, and old ponds.

C. Frodsham Marsh (J.F.R.). Rock Ferry (Dr. C.). Ponds at Prenton; Bebington; from Raby village to Willaston; Mollington (Dr. G.). Frequent in the canal, sluggish brooks and old ponds.

Hydrocharis (L.). Frogbit.

H. Morsus-ranae (L.). *Fig. 592.* Frogbit. Native. P. VII, VIII.

Ponds and ditches. Frequent.

L. Crosby; Formby; Southport (D.). Ditches in Gorsey Lane, between Barton and Formby; ditch by Moorhouse, about one mile inland of Hightown Station (R.B.).

C. Bidston Marsh (H.). Marshes at Frodsham and Ince (J.F.R.). In a plash N. side of Mollington Bridge (Lord de T.). Oxton to Woodchurch (Miss C. G.; R.B.). In ponds and the Birkett from Leasowe to Gt. Meols and Newton-cum-Larton; Ponds and ditches at Moreton, and in the Langfields, West Kirby (Dr. G.). Ponds between Elton Green and Thornton-le-Moors; near Salters Lane, between Caughall and Mickle Trafford; W. of Manley; between Dunham-on-the-Hill and Dunham Heath; between Great Mollington and Great Saughall; in ditches between Ellesmere Port and Stanlow Point; and near Plemstall towards Picton (R.B.). Pond near Poole Hall, towards Hooton Wood (E.D.).

Stratiotes Aloides (*L.*). The Water Soldier, is now lost to the district.

In *Liverpool Flora*, 1872, it is mentioned as having occurred in Bootle and Walton, L. (H.). And in the higher parts of Wirral, C. (D.).

ORCHIDEÆ.

Neottia (*L.*). Birds-nest.

N. Nidus-avis (*Rich.*). *Fig. 593.* Birds-nest Orchid. Native. P. VI.

In woods and damp places. Very rare.

L. Halewood, and Dean Wood, Upholland; Lathom Park (D.). Wood at Ince Blundell (Miss D.). Southport (T.G.).

Listera (*R. Br.*). Tway-blade.

L. cordata (*R. Br.*). *Fig. 594.*

The Lesser Tway-blade is given in D. as having occurred in L., on the banks of the Alt, below Altcar Marsh, but has not been recorded since.

L. ovata (*R. Br.*). *Fig. 595* Tway-blade. Native. P. V, VI.

In woods and damp places. Frequent.

L. Damp hollows among the sandhills from Hall Road to Southport. Dungeon.

C. Scattered well over C., as at Meols, West Kirby, Dibbinsdale, Shotwick.

Spiranthes (*Rich.*). Lady's Tresses.

S. autumnalis (*Rich.*). *Fig. 596.* Autumnal Lady's Tresses. Native. P. VIII, IX.

Meadows and sandy fields. Rare.

L. Allerton and Ince Woods (W.). Hale, &c.; Southport (D.).

C. Among the sandhills and in sandy fields near Wallasey (H.), 1896 (Miss W.). Hoylake (Miss C. G.).

Epipactis (*Rich.*). Helleborine.

E. latifolia (*Auct.*). *Fig. 597.* Broad-leaved Helleborine. Native. P. VII, VIII.

In woods, and among the sandhills. Occasional.

L. Crosby Marsh (J.S.). Close to Hall Road Station, S.W. side (R.B.). Formby to Southport; Hale Dam; Croxteth Wood (D.).

C. Wood between the church near Childer Thornton and Hooton Hall (Field Club). Wallasey sandhills. 1893, Wood between Ledsham and Burton (Miss W.).



Fig. 590. *LARIX EUROPAEA*.



Fig. 591. *ELODEA CANADENSIS*.



Fig. 592. *HYDROCHARIS MORSUS-RANÆ*.



Fig. 593. *NEOTTIA NIDUS-AIRS*.

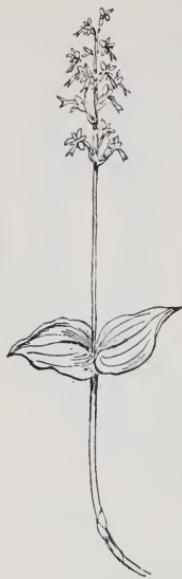


Fig. 594.
LISTERA CORDATA.



Fig. 595.
LISTERA OVATA.

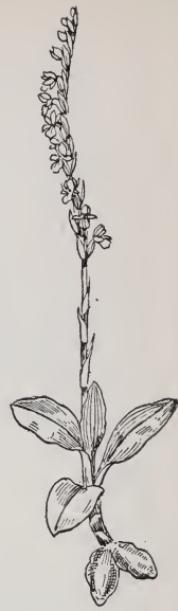


Fig. 596.
SPIRANTHES AUTUMNALIS.



Fig. 597.
EPIPACTIS LATIFOLIA.



Fig. 598.
EPIPACTIS PALUSTRIS.



Fig. 599.
ORCHIS PYRAMIDALIS.

E. media (*Fr.*). Intermediate Broad-leaved Helleborine. Native.
P. VII, VIII.

In woods. Very rare.

F. 1894, Wood inland of Flint (Dr. G.).

E. palustris (*Crantz.*). *Fig. 598.* Marsh Helleborine. Native. P. VII, VIII.

Damp places among the sandhills. Locally abundant in L. Rarer in C.

L. Crosby to Southport abundantly.

C. Wallasey (D.). 1893, Langfields, West Kirby (w.w.).

Orchis (*L.*). Orchis.

O. pyramidalis (*L.*). *Fig. 599.* Pyramidal Orchid. Native. P. VII.

Meadows and sandhills. Rare.

L. Southport (T.G.). Between Freshfield and Ainsdale among the sandhills (F.M.W.).

C. Among the sandhills at Wallasey; Hoylake (D.).

NOTE.—There are no recent records.

O. Morio (*L.*). *Fig. 600.* Green-winged Meadow Orchid. Native. P. V, VI.

Meadows, &c. Frequent.

L. Crosby.

C. Oxton Heath; Moreton to West Kirby; Raby; Hooton; Willaston; Shotwick; Frodsham.

O. mascula. *Fig. 601.* Early Purple Orchid. Native. P. V.

Meadows, woods, roadsides. Frequent.

C. Railway bank N. of Mollington Station; Railway banks between Spital and Bromborough, and in the adjoining woods; Wood bordering the lane between Capenhurst and the Chester road; Shotwick Dale (R.B.). Thurstanston (Miss W.). Copse W. of Little Storeton; Dibbinsdale; Roadside W. of the head of Raby Mere; Moreton to Meols (Dr. G.).

O. incarnata (*L.*). *Fig. 602.* Marsh Orchid. Native. P. VI.

Among the sandhills. Occasional.

L. Crosby to Southport (H.S.F.; F.M.W.).

C. Wallasey sandhills (Miss W.). Meadows between Leasowe and Great Meols.

O. latifolia (*L.*). *Fig. 603.* Broad-leaved Marsh Orchid. Native. P. V, VI.

Marshy places inland and among the sandhills. Occasional.

L. Meadows near Crosby (H.). Near the Old Hut, Hale;

Borders of Simmonswood Moss; Formby; Southport (D.). Near Moss Lane, between Formby and Haskayne; Meadows by the R. Alt below Lydiate (R.B.).

C. Fields near the sandhills, Wallasey (H.). Moreton (D.). Leasowe to Meols (Miss W.; Dr. G.). Langfields, West Kirby; Thurstanston (Dr. G.).

- O. maculata (L.). Fig. 604.** Spotted Hand-Orchid. Native. P. V, VI.

In damp places. Common.

C. Raby Mere; Meols; West Kirby; near Ness; Overpool; Stoke.

Ophrys (L.).

- O. apifera (Huds.). Fig. 605.** Bee Orchid. Native. P. VI, VII.

Damp places. Very rare.

L. Sandhills half-mile N. of Crosby Station (D.).

C. West Kirby (Mrs. F. B.). Langfields, West Kirby (h.s.).

NOTE.—There are no recent records.

Habenaria (R. Br.).

- H. conopsea (Benth.). Fig. 606.** Fragrant Orchid. Native. P. VI, VII.

(*Gymnadenia conopsea*).

Dry fields. Rare.

L. Southport (D.).

C. Upton (D.). West Kirby (H.S.F.: F.M.W.). 1893, Langfields, West Kirby (w.w.). 1887, Leasowe (Miss W.). Arrowe (T.H.).

- H. albida (R. Br.).** Small White Orchid. Native. P. VI, VII.

Dry fields. Very rare.

C. Bromborough (W.H.H.).

- H. viridis (R. Br.).** Frog Orchid. Native. P. VI, VII.

Meadows and sandhills. Very rare.

L. Formby sandhills (D.).

C. Near Grange Landmark (D.). Theobauld's field, Bidston Hill (Mrs. F. B.).

- H. bifolia (R. Br.). Fig. 607.** Lesser Butterfly Orchid. Native. P. VI, VII.

Meadows and heaths. Occasional.

L. Near Sefton; Ince; Formby; Southport; on a reclaimed part of Simmonswood Moss (D.).

C. Eastham; Bebington; Sutton (H.). N. side of Brom-



Fig. 600. ORCHIS MORIO.



Fig. 601. ORCHIS MASCUA.



Fig. 602. ORCHIS INCARNATA.



Fig. 603. ORCHIS LATIFOLIA.



Fig. 604. *ORCHIS MACULATA.*



Fig. 605. *OPHRYS APIFERA.*



Fig. 606.
HABENARIA CONOPSEA.



Fig. 607.
HABENARIA BIFOLIA.



Fig. 608.
IRIS PSEUDACORUS.

borough Pool, near the River Mersey (D.). Hilbre (T.G.). 1873, Langfields, West Kirby (H.S.). Barnston in 1893 (E.D.F.). 1896, between Willaston and Ness (Dr. G.).

Authority for Orchideæ, H. N. Ridley.

IRIDEÆ.

Iris (L.). Flag.

I. Pseudacorus (L.). *Fig. 608.* Yellow Iris or Flag. Native. P. VI, VII.

In wet places. Common.

Crocus (L.).

C. nudiflorus. Crocus. Denizen. P. IX.

Damp places. Very rare.

L. Meadow, Warrington (J.F.R.). About one and a half mile from Liverpool towards Allerton (W.). (?) Built over now, 1900. There are no recent records.

AMARYLLIDEÆ.

Narcissus (L.).

N. pseudo-narcissus (L.). *Fig. 609.* Daffodil, Lent Lily. Native. P. IV, V.

Damp woods, hedge banks, &c. Rare.

L. Halewood; Fazakerley; Gill Moss (D.). Wood near Halsnead Park (Rev. H.). Knowsley Park (H.L.H.). Planted in the Dingle (Dr. G.).

C. Wood near Frodsham (J.F.R.).

N. biflorus (Curt.). *Fig. 610.* Two-flowered Narcissus. Denizen. P. IV, V.

Banks, &c. Very rare.

C. Abundantly on Hilbre in one place; evidently of very early introduction, and may even date back to the time when a religious house existed on the island (H.S.F.); very abundant in 1901.

N. poeticus (L.).

Occurs occasionally in the district as an outcast from gardens.

Galanthus (L.). Snowdrop.

G. nivalis (L.). *Fig. 611.* Snowdrop. Denizen. P. III, IV.

In woods and meadows, always introduced. Rare.

L. Wood by side of road quarter-mile W. of Roby (D.).

Wood near Halsnead (Rev. H.). 1887, abundant in a large field between Druids Cross and the Woolton Road (R.B.).

C. Bellaire Wood, near Frodsham; and at Bromborough (J.F.R.). Hooton Park (T.G.; H.C.), there in 1902.

DIOSCOREÆ.

Tamus (L.). Black Briony.

T. communis (L.). *Fig. 612.* Black Briony. Native. P. VI, VII. Hedges. Common.

LILIACEÆ.

Ruscus (L.). Butcher's Broom.

R. aculeatus (L.). *Fig. 613.* Knee Holly. Butcher's Broom. Denizen. Shrub. III, IV.

Thickets. Very rare.

C. 1877–1887, about half-a-dozen bushes in the hedge and adjoining thicket and dell on the Chester high road, about three-quarter mile S. of the canal bridge near Backford (E.D.).

Asparagus (L.).

A. officinalis (L.). *Fig. 614.* Asparagus. Native or Denizen. P. VIII.

a. hortensis (*Lond. Cat.*).

Naturalised on the sandhills, originally escaped from cultivation about Formby.

L. At intervals among the sandhills from Hall Road to Birkdale (R.B.).

C. Wallasey sandhills, 1893 (Dr. G.).

NOTE.—This plant is cultivated in considerable quantity about Formby.

Polygonatum (*Tourn.*). Solomon's Seal.

P. multiflorum (*All.*). Solomon's Seal. Denizen. P. V.

Woods, &c. Very rare.

L. Hedge bank near Ormskirk (T.W.).

NOTE.—There are no recent records.

Convallaria (L.). Lily of the Valley.

C. majalis (L.). *Fig. 615.* Lily of the Valley. Denizen. P. V.

Woods, &c. Very rare.

L. Knowsley (D.).

C. Dunsdale Valley, Overton Hills (J.F.R.).



Fig. 609. *NARCISSUS PSEUDO-NARCISSUS*



Fig. 610. *NARCISSUS BIFLORUS.*



Fig. 611. *GALANTHUS NIVALIS.*



Fig. 612. *TAMUS COMMUNIS.*



Fig. 613. *RUSCUS ACULEATUS*.



Fig. 614. *ASPARAGUS OFFICINALIS*.

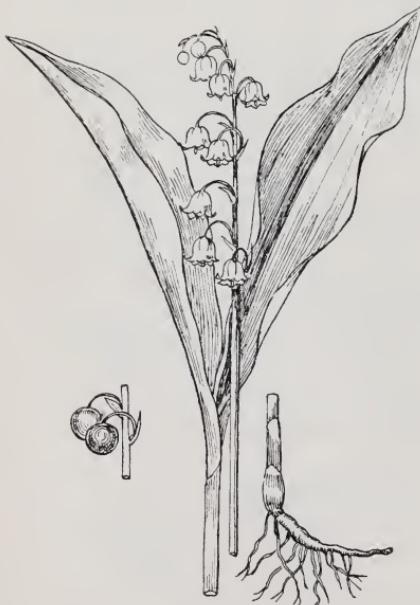


Fig. 615. *CONVALLARIA MAJALIS*.



Fig. 616. *ALLIUM AMPELOPRASUM*.

A. Ampeloprasum (*L.*). *Fig. 616.* Colonist. P. VIII.

L. 1891, Field close to the sandhills at Formby (R.B.).

Allium (*L.*). Garlic.

A. Scorodoprasum (*L.*). *Fig. 617.* Sand Leek. Native. P. VI, VII.

Sandy banks. Very rare.

L. Banks of the River Mersey at Speke, and towards Dungeon (D.).

A. vineale (*L.*). *Fig. 618.* Crow Garlic. Native. P. VII.

Waste ground. Very rare.

L. Near Speke, abundantly (D.). No recent records.

C. 1894, Hedgecop in the Langfields near Hoylake (Dr. G.).

F. 1901, abundant on the Dee Cop near Higher Ferry (Dr. G.).

A. ursinum (*L.*). *Fig. 619.* Garlic. Ramsons. Native. P. V, VI.

Woods and hedge banks. Occasional.

L. Hale.

C. Frodsham; Rocksavage; Shotwick; Gayton (Flora Committee). Parkgate to Neston (Dr. G.).

Scilla (*L.*). Squill.

S. nutans (*Sm.*). *Fig. 620.* Hyacinth. Blue-bell. Native. P. V.

Woods and hedge banks. Common.

Ornithogalum (*L.*). Star of Bethlehem.

O. umbellatum (*L.*). *Fig. 621.* Star of Bethlehem. Denizen. P. V.

Woods and hedge banks. Rare.

L. Southport; Meadow at Litherland near the canal (D.). Formby (J.H.L.). N. of Altcar Rifle Range (H.C.). A short distance inland of Hightown Station (R.B.).

C. 1893, Railway bank between Hoylake and West Kirby.

Narthecium (*Huds.*). Bog Asphodel.

N. ossifragum (*Huds.*). *Fig. 622.* Bog Asphodel. Native. P. VI, VII.

Boggy places. Occasional.

L. Formby to Barton.

C. Boggy heaths at Oxton, Thurstanston and Heswall.

Asphodelus fistulosus (*Willd.*). *Fig. 623.* Casual.

L. 1900, Walton Gaol grounds (J.A.W.).

C. 1866, as a ballast plant on new made roads at Claughton (H.S.F.). Birkenhead Docks (R.B.).

Paris (L.). Herb Paris.

P. quadrifolia (L.). *Fig. 624.* Herb Paris. Native. P. V.

Damp woods. Rare.

L. Wood near Billinge; Bath Wood (D.).

C. Rock Savage (J.F.R.). Wood opposite the canal at Aston Park (D.).

JUNCACEÆ.

Juncus (L.). Rush.

J. bufonius (L.). *Fig. 625.* Toad Rush. Native. A. VII, VIII.

In wet places. Very common.

b. fasciculatus (Koch).

In ground which is covered by water in winter, but dry in summer. Rare.

L. Shore at Speke (J.H.L.).

C. Seacombe (J.H.L.). Waste ground near Birkenhead Docks.

J. squarrosus (L.). *Fig. 626.* Heath Rush. Native. P. VI, VII.

Wet heaths and moors. Common.

J. compressus (Jacq.). *Fig. 627.* Round-fruited Rush. Native.

P. VI-VIII.

Damp places. Very rare.

F. 1896, Burton Marshes, near railway (Dr. G.).

NOTE.—In *Liverpool Flora*, 1872, this plant was given as a sub-species of *J. bulbosus* (L.), and described as “frequent;” but the Flora Committee of 1893 were not aware of its existence in the district at that time, and thought it had been entered in error.

J. Gerardi (Lois.). *Fig. 628.* Mud Rush. Native. P. VI-VIII.

Salt marshes. Common.

J. glaucus (Ehrh.). *Fig. 629.* Hard Rush. Native. P. VII.

Wet places. Common.

J. diffusus (Höpfe.). Diffuse Rush. Native. P. VII, VIII.

Wet places. Very rare.

C. Overton Hills, very sparingly (J.F.R.).

NOTE.—There are no recent records. This plant is now considered a hybrid of *J. glaucus* and *J. effusus*.

J. effusus (L.). Soft Rush. Native. P. VII, VIII.

Wet places. Common.

J. conglomeratus (L.). Close-flowered Rush. Native. P. VII.

Marshy places. Common.



Fig. 617. ALLIUM SCORODOPRASUM



Fig. 618. ALLIUM VINEALE.



Fig. 619. ALLIUM URSINUM.



Fig. 620. SCILLA NUTANS.



Fig. 621. ORNITHOGALUM UMBELLATUM.



Fig. 622. NARTHECIUM OSSIFRAGUM.



Fig. 623. ASPHODELUS FISTULOSUS.

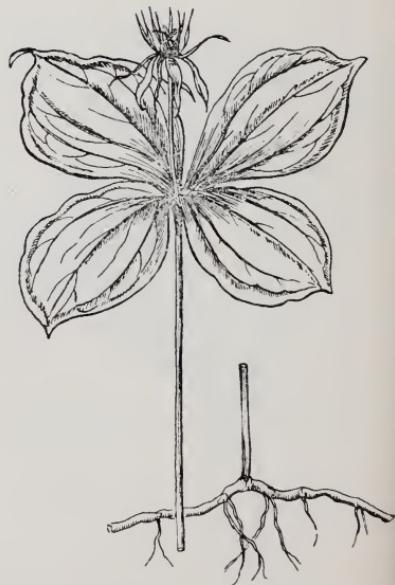


Fig. 624. PARIS QUADRIFOLIA



Fig. 625. *JUNCUS BUFONIUS*.



Fig. 626. *JUNCUS SQUARROSUS*



Fig. 627.
JUNCUS COMPRESSUS.



Fig. 628.
JUNCUS GERARDI.



Fig. 629.
JUNCUS GLAUCUS.



Fig. 630.
JUNCUS MARITIMUS.



Fig. 631.
JUNCUS SUPINUS.



Fig. 632.
JUNCUS LAMPROCARPUS.



Fig. 633. *JUNCUS ACUTIFLORUS.*



Fig. 634. *LUZULA PILOSA.*

J. maritimus (*Sm.*). *Fig. 630.* Lesser Sea Rush. Native. P. VII, VIII.

Salt Marshes, and hollows among the sandhills. Occasional.

L. Southport (D.). Dungeon; Formby; 1875, Banks of River Mersey, between Ditton and Hale Point (R.B.).

C. Bidston marsh, and back of the sandhills between Hoylake and West Kirby (H.). Behind the sandhills, between Wallasey and Leasowe; Seacombe (J.H.L.). Bromborough Marsh (H.S.F.). Shore between Eastham Ferry and Ellesmere Port; about the old ferry at Ince (R.B.).

J. supinus (*Moench*). *Fig. 631.* Lesser Jointed-Rush. Native. P. VI-VIII.

Damp places. Rare.

d. uliginosus (*Roth.*).

C. Claughton (J.H.L.). Oxton Heath (R.B.).

e. subverticillatus (*Wulf.*).

Damp places. Occasional.

L. Ditches between Little Crosby and Ince (H.). Formby (D.)

C. Bidston marsh (H.). Frodsham (J.F.R.).

J. obtusiflorus (*Ehrh.*) Blunt-Flowered Rush. Native. P. VII-IX.

Damp places. Rare.

NOTE.—Recent confirmation is required.

J. lamprocarpus (*Ehrh.*). *Fig. 632.* Shining-Fruited Rush. Native. P. VII, VIII.

Boggy places. Common.

J. acutiflorus (*Ehrh.*). *Fig. 633.* Sharp-Flowered Rush. Native. P. VI-VIII.

Woods and damp places. Common.

Luzula (*Cand.*). Wood-Rush.

L. pilosa (*Willd.*). *Fig. 634.* Hairy Wood-Rush. Native. P. V. Woods and shady places. Frequent.

L. Hale.

C. Eastham; Barnston Dale.

L. maxima (*D. C.*). *Fig. 635.* Great Wood-Rush. Native. P. IV-VI.

Woods and shady places. Occasional.

C. Eastham Woods; Barnston Dale.

L. campestris (*D. C.*). *Fig. 636.* Field Wood-Rush. Native. P. IV, V.

Woods and meadows. Very common.

L. multiflora (*Lej.*). *Fig. 637.* Many-headed Wood Rush. Native. P. VI.

Woods and heaths. Frequent.

a. umbellata.

L. Plantation abutting on the shore at Speke (*J.H.L.*). Road-side between Formby and Haskayne (*R.B.*). Garswood (*Dr. G.*).

C. Hooton Park, &c. (*Dr. G.*).

b. congesta (*Koch.*).

Damp heathy places. Commoner than the type form.

L. Kirkby; Garswood.

C. Bidston and Oxton; Heswall and Thurstaston, on the heaths. Near Ness.

TYPHACEÆ.

***Typha* (*L.*).** Reed-Mace.

T. latifolia (*L.*). *Fig. 638.* Great Reed Mace. Native. P. VI, VII.

Ponds and ditches. Common.

T. angustifolia (*L.*). *Fig. 639.* Small Reed Mace. Native. P. VI, VII.

Ponds and ditches. Frequent.

L. Kirkby.

C. In ponds about Prenton, Landican, Meols, Parkgate to Thornton Hough, and Little Sutton.

***Sparganium* (*L.*).** Bur-reed.

S. ramosum (*Curt.*). *Fig. 640.* Branched Bur-reed. Native. P. VI, VII.

Ponds and ditches. Common.

S. simplex (*Huds.*). *Fig. 641.* Unbranched Bur-reed. Native. P. VII.

Ponds and ditches. Common.

C. Ponds at Leasowe, Irby, Ledsham to Neston, N. of Wilaston.

S. minimum (*Fr.*). *Fig. 642.* Smaller Floating Bur-reed. Native. P. VII, VIII.

Ponds and ditches. Rare.

C. Near New Ferry; Woodhead Farm, Lower Bebington



Fig. 635. *Luzula maxima*.



Fig. 636. *Luzula campestris*



Fig. 637. *Luzula multiflora*.

a. *Umbellata*.
b. *Congesta*.

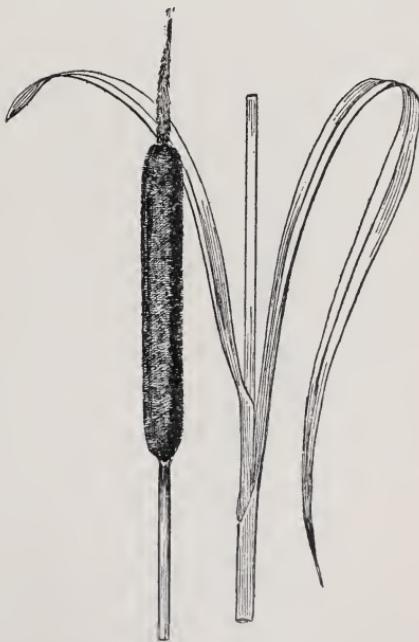


Fig. 638. *Typha latifolia*.



Fig. 639. *TYPHA ANGUSTIFOLIA*.



Fig. 640. *SPARGANIUM RAMOSUM*.



Fig. 641. *SPARGANIUM SIMPLEX*.



Fig. 642. *SPARGANIUM MINIMUM*.

(D.). Pond between Limbo Lane and E. side Thurstan Hill (F.M.W.). Pond near footpath quarter-mile from Little Sutton Station towards Overpool (R.B.); there in 1899 (Dr. G.). Pond one mile S. of Raby (R.B.).

Authority for Sparganium, W. H. Beeby.

AROIDEÆ.

Arum (*L.*). Cuckoo-pint.

- A. maculatum** (*L.*). *Fig. 643.* Cuckoo-pint. Lords and Ladies. Native. P. IV, V.

Woods and hedge banks. Occasional.

C. About Prenton Dell; Woodchurch and Arrowe Park; Neston, near the shore; Mollington; Shotwick Dale to the Marsh.

Acorus. Sweet Flag.

- A. Calamus** (*L.*). *Fig. 644.* Sweet Flag. Colonist. P. VI, VII. Lakes and ponds. Rare.

L. In the lake at Croxteth (Miss G.). Calcotts Pond, Green Bank (H. G., Jun.).

C. S. U. Canal, from Ellesmere Port to Chester, at intervals (Lord de T.; &c.).

LEMNACEÆ.

Lemna (*L.*). Duckweed.

- L. trisulca** (*L.*). *Fig. 645.* Ivy-leaved Duckweed. Native. A. VI.

Ponds and ditches. Common.

- L. minor** (*L.*). *Fig. 646.* Lesser Duckweed. Native. A. VI, VII. Ponds and ditches. Very common.

- L. gibba** (*L.*). *Fig. 647.* Gibbous Duckweed. Native. A. VI-VIII.

On stagnant water. Occasional.

C. Pond one mile N. of Willaston.

- L. polyrrhiza** (*L.*). *Fig. 648.* Greater Duckweed. Native. A. Ponds and ditches. Occasional.

L. Near Clubmoor (D.). Broad Green and Green Bank (J.H.L.). Ponds between Lydiate Hall and River Alt (T.B.).

C. Frodsham Marsh (J.F.R.). Seacombe (J.H.L.). Pond quarter mile N. of Great Mollington. 1900, Pond quarter mile S. of Hadlow Road Station (Miss W.).

NOTE.—This plant does not flower in Britain.

ALISMACEÆ.

Alisma (L.). Water Plantain.

- A. *Plantago* (L.). *Fig. 649.* Great Water Plantain. Native. P. VII, VIII.

Ponds and ditches Common.

NOTE.—Both the type and *b. lanceolatum* (With.) occur in the district.

- A. *ranunculoides* (L.). *Fig. 650.* Small Water Plantain. Native. P. VI, VII.

Ponds and boggy places. Frequent.

L. Formby; Halsall; Barton; Hale; Kirkby; Crosby.

C. Helsby; Wallasey; Leasowe; Meols; New Ferry; Prenton; Irby; Head of Raby Mere; Langfields, West Kirby; Caldy.

NOTE.—Both the type and *b. repens* (Davies) occur in the district.

Elisma. Floating Water Plantain.

- E. *natans* (Buchenau). Floating Water Plantain. Native. P. VIII.

(*Alisma natans*).

In the S. U. Canal. Rare.

C. In the canal E. of Mollington Viaduct, and again, a short way W. of Chorlton Bridge (Lord de T.; F.M.W.).

Sagittaria (L.). Arrow-head.

- S. *sagittifolia* (L.). *Fig. 651.* Arrow-head. Native. P. VIII.

In the S. U. Canal. Very rare.

C. In the canal at intervals from Ellesmere Port to Mollington Viaduct (Lord de T.; F.M.W., &c.).

Butomus (L.). Flowering Rush.

- B. *umbellatus* (L.). *Fig. 652.* Flowering Rush. Native. P. VI, VII.

Rivers, ponds and ditches. Occasional.

L. Between Ince and the sea (W.). Formby (H.). Little Crosby; Southport (D.). Calcott's pond, Sefton Park (H.S.F.). 1886, shallow pool at Halewood (R.H.D.).

C. In many ponds and ditches at intervals from Bidston to West Kirby (H.; R.B., &c.). In many ponds and ditches about Frodsham, Ince, Plemstall, Wimbolds Trafford, &c. (J.F.R.; R.B., &c.). Canal between Mollington Viaduct and Chorlton Bridge (Lord de T.; F.M.W.). Trenches between Thornton-le-Moors and Stoke (F.M.W.; W.W.N.).



Fig. 643. *ARUM MACULATUM.*



Fig. 644. *ACORUS CALAMUS.*



Fig. 645. *LEMNA TRISULCA.*

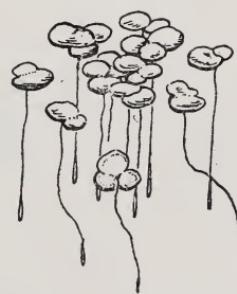


Fig. 646. *LEMNA MINOR.*

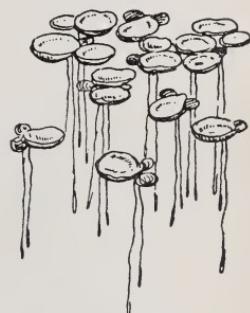


Fig. 647. *LEMNA GIBBA.*

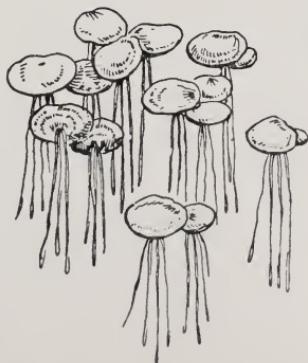


Fig. 648. *LEMNA POLYRRHIZA.*



Fig. 649. *ALISMA PLANTAGO.*



Fig. 650. *ALISMA RANUNCULOIDES.*

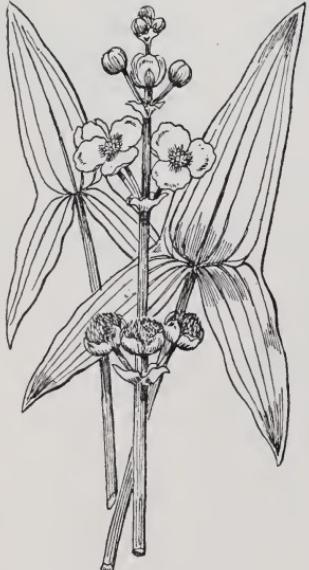


Fig. 651. *SAGITTARIA SAGITTIFOLIA.*



Fig. 652. *BUTOMUS UMBELLATUS.*

NAIADACEÆ.

Triglochin (*L.*). Arrowgrass.

- T. *palustre* (*L.*). *Fig. 653.* Marsh Arrowgrass. Native. P. VII, VIII.

Marshy places. Frequent.

L. Formby to Haskayne, Barton and Halsall.

C. Burton, Leasowe, Mollington. Wallasey Marsh; Raby; S. U. Canal banks; Backford.

- T. *maritimum* (*L.*). *Fig. 654* Seaside Arrowgrass. Native. P. VII, VIII.

Salt marshes. Frequent.

L. Mouth of the R. Alt; Dungeon.

C. Leasowe; West Kirby; Burton Marshes; Bromborough Pool.

Potomogeton (*L.*). Pondweed.

- P. *natans* (*L.*). *Fig. 655.* Floating Pondweed. Native. P. VI, VII.

Ponds and ditches. Common.

- P. *polygonifolius* (*Poir.*). Oblong-leaved Pondweed. Native. P. VII.

Ponds and ditches. Rare.

L. Canal at Litherland (*H.*). Moss Pit, Aintree (*F.M.W.*). Pond in quarry N.W. of R. C. Chapel, Little Crosby (*J.H.L.*).

C. Oxton Heath (*F.M.W.*; *H.S.F.*). Dykes in the Langfields, West Kirby (*F.M.W.*).

- P. *rufescens* (*Schrab.*). Reddish Pondweed. Native. P. VII.

Streams and ditches. Occasional.

L. Altcar Marsh; Formby Marsh (*D.*). Near Warrington (*T.G.*). In North Moss Lane, Formby (*F.M.W.*).

C. Pond between Ledsham Station and Hallwood Farm; near W. end of Capenhurst; E. of Hargreave Hall; Pond between Capenhurst and Ledsham; Pond between Ledsham and Willaston (*R.B.*).

- P. *heterophyllus* (*Schreb.*). *Fig. 656.* Various-leaved Pondweed. Native. P. VI, VII.

Ponds and ditches. Rare.

L. Marsh and ditches N. of Crosby (*D.*). Near Birkdale (*H.S.F.*; *F.P.M.*). Shallow pool among the sandhills between Formby and Freshfield (*E.D.*).

C. Bidston Marsh (*H.*). Pond between Thurstanston and Dawpool (*R.B.*).

P. lucens (L.). *Fig. 657.* Great Pondweed. Native. P. VI.

Ponds and ditches. Very rare.

L. Formby Marsh (D.).

C. 1895, Pond near Ledsham (Dr. G.).

P. perfoliatus (L.). *Fig. 658.* Perfoliate Pondweed. Native. P. VII.

Canals and ponds. Very rare.

L. Canal between Bootle and Litherland (H.). And on to Halsall, &c. (R.B.).

P. crispus (L.). *Fig. 659.* Curled Pondweed. Native. P. VI.

Ponds and ditches. Frequent.

C. Birkenhead Park; Bidston Ford; Leasowe.

b. serratus (Huds.).

Is often met with in the district.

P. densus (L.). Opposite-leaved Pondweed. Native. P. VI, VII.

Ponds and ditches. Very rare.

L. Ponds in brickfields between Edge Lane and Wavertree Road; on E. side of the Botanic Gardens (F.M.W.).

NOTE.—This locality was probably destroyed by the building of the Exhibition in 1886.

P. obtusifolius (Mert. and Koch.). *Fig. 660.* Grassy Pondweed. Native. P. VI, VII.

Ponds and ditches. Occasional.

L. Stream in Croxteth Park; Crosby Marsh; near Hightown Station (D.). Pond in quarry N.W. of R. C. Chapel, Little Crosby (J.H.L.).

C. Near Rock Ferry (D.). In ponds in the following localities, viz.: halfway between Hadlow Road Station and Hallwood Farm; W. end of Capenhurst; near Hargreave Hall; by the footpath from L. Sutton Station towards Overpool; near Rake Lane, Bromborough; in Hooton Park; between Ledsham Station and Hadlow Road; and thence westward towards the Chester Road (R.B.). Ponds near Raby and Backford (Dr. G.).

P. pusillus (L.). Small Pondweed. Native. P. VI.

Ponds and ditches. Frequent.

C. Near Willaston; Helsby Marsh.

b. tenuissimus (Koch.). *Fig. 661.*

C. Langfields, West Kirby; Newton; Backford; S. U. Canal (Dr. G.).



Fig. 653. *TRIGLOCHIN PALUSTRE*



Fig. 654. *TRIGLOCHIN MARITIMUM.*



Fig. 655. *POTAMOGETON NATANS.*



Fig. 656. *POTAMOGETON HETEROPHYLLUS.*



Fig. 657. *POTAMOGETON LUCENS.*



Fig. 658. *POTAMOGETON PERFOLIATUS.*



Fig. 659. *POTAMOGETON CRISPUS.*



Fig. 660. *POTAMOGETON OBTUSIFOLIUS.*



Fig. 661. *POTAMOGETON PUSILLUS*



Fig. 662. *POTAMOGETON PECTINATUS.*



Fig. 663. *RUPPIA ROSTELLATA.*

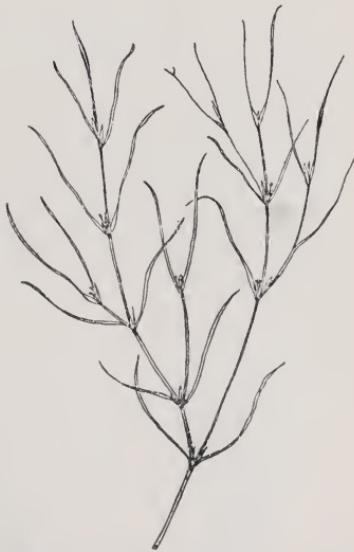


Fig. 664. *ZANNICHELLIA PALUSTRIS.*

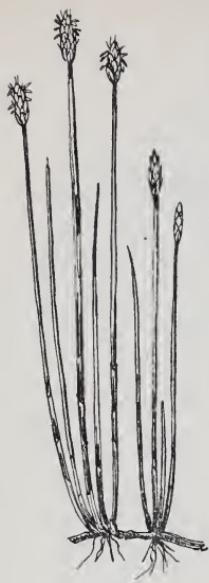


Fig. 665.
ELEOCHARIS PALUSTRIS.

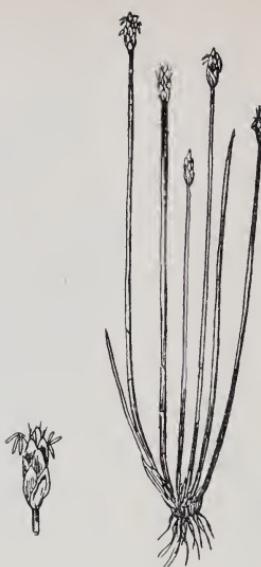


Fig. 666.
ELEOCHARIS UNIGLUMIS.



Fig. 667.
ELEOCHARIS MULTICAULIS.



Fig. 668. *SCIRPUS CÆSPITOSUS.*



Fig. 669. *SCIRPUS FLUITANS.*

P. pectinatus (L.). *Fig. 662.* Fennel-leaved Pondweed. Native. P. VI, VII.

Ponds and streams. Occasional.

L. At intervals in the canal between Liverpool and the limits of the district (H.).

C. Pond near Poulton Bridge (D.). Ditch near Leasowe Lighthouse (J.H.L.). At intervals in the canal between Ellesmere Port and Chester (F.M.W.; R.B.). Helsby Marsh.

b. scoparius (Wallr.).

L. Ditches near the Decoy at Hale (R.B.).

C. Frodsham Marsh (J.F.R.).

Authorities for Potomogeton, Alfred Fryer and Arthur Bennett.

Ruppia (L.). Tassel Pondweed.

R. spiralis (Hortm.). Greater Ruppia. Native. P. VII, VIII.

Salt water pools and ditches. Occasional.

L. Crosby (H.).

C. Bidston Marsh (H.). Salt marshes below Puddington (Lord de T.; F.M.W.).

R. rostellata (Koch.). *Fig. 663.* Lesser Ruppia. Native. P. VI-VIII.

In salt water pools and ditches. Occasional.

C. Seacombe (J.H.L.). Bidston Marsh (R.B.). S. U. Canal (Dr. G.).

Zannichellia (L.). Horned Pondweed.

Z. palustris (L.). *Fig. 664.* Horned Pondweed. Native. A. or P. V-VIII.

Ponds and ditches. Frequent.

L. Formby to Halsall; Barton and Halsall.

C. Great Mollington; Burton Marsh; Leasowe; Bidston Marsh; Langfields, West Kirby; Parkgate.

Z. pedunculata (Reichb.). Stalk-fruited Horned Pondweed. Native. A. or B. V-VIII.

Ponds and ditches. Rare.

L. Southport (T.G.).

C. Frodsham (J.F.R.). Between Ellesmere Port and Stanlow; Ditches inland of Heswall Point; Bidston Marsh (R.B.).

Zostera (L.). Grasswrack.

Z. marina (L.). Grasswrack. Native. P. (?) VII, VIII.

Saltwater pools and ditches. Rare.

L. Near the mouth of R. Alt (H.).

C. Hoylake (D.).

NOTE.—There are no recent records; it is probably extinct.

GLUMIFERÆ.

CYPERACEÆ.

Eleocharis (*R. Br.*).

- E. acicularis** (*Sm.*). Slender Club-rush. Native. P (?) A. VIII, IX.

Damp, sandy, and heathy places. Occasional.

L. Sandhills, Crosby (D.).

C. Bidston Heath (D.).

- E. palustris** (*R. Br.*). *Fig. 665.* Marsh Club-rush. Native. P. VII-IX.

Marshy places. Common.

- E. uniglumis** (*Link*). *Fig. 666.* Link's Club-rush. Native. P. VII-IX.

Wet sandy places, especially near the sea. Rare.

L. Seven Pits, Aintree; Hale Bank (*H.S.F.*). Damp places among the sandhills near Ainsdale Station; Marsh by the bridge leading to the Rifle Range, Altcar (*F.M.W.*). Salt Marsh at Dungeon (*R.B.*).

C. Damp ground near Leasowe Lighthouse; Upper Lang Fields under the Hill Houses, West Kirby (*F.M.W.*). Shore half a mile S. of Parkgate (*Lord de T.*).

F. Great Saughall (*Dr. G.*).

- b. Watsoni* (*Bab.*).

L. Ainsdale (*Dr. B. C.*).

- E. multicaulis** (*Sm.*). *Fig 667.* Many-stemmed Club-rush. Native. P. VII-IX.

Marshy places. Occasional.

L. Marsh between Southport and Ormskirk (D.). 1885, margin of the large lake in Knowsley Park (*R.B.*).

C. Oxton Heath (*H.S.F.*). Frankby (*Rev. H.*). Frequent on moist heaths in Cheshire (*F.M.W.*). Heswall Hill.

Scirpus (*L.*). Club-rush.

- S. pauciflorus** (*Lightf.*). Chocolate-headed Club-rush. Native. P. VII-IX.

Damp, sandy, and heathy places. Occasional.



Fig. 670. *SCIRPUS SETACEUS.*



Fig. 671. *SCIRPUS TABERNÆMONTANI.*



Fig. 672. *SCIRPUS MARITIMUS.*



Fig. 673. *SCIRPUS CARICIS*



Fig. 674.
SCIRPUS SYLVATICUS.



Fig. 675.
ERIOPHORUM VAGINATUM.



Fig. 676.
ERIOPHORUM ANGUSTIFOLIUM.



Fig. 677.
ERIOPHORUM LATIFOLIUM.



Fig. 678.
RHYNCHOSPORA ALBA.



Fig. 679.
CAREX PULICARIS.

L. Crosby (H.). Damp sandy hollows at Hightown, Formby, Freshfield (R.B.). Birkdale (J.H.L.). Warbreck Moor (H.S.F.).

C. Sandhills, Wallasey (Lord de T.).

S. caespitosus (L.). Fig. 668. Scaly-stemmed Club-rush. Native. P. VI, VII.

Damp, heathy places. Occasional.

L. Formby; Southport (D.).

C. Bidston and Oxton Heaths (H.). Heswall Hill (D.). West Kirby. Overton Hills (J.F.R.).

S. fluitans (L.). Fig. 669. Floating Club-rush. Native. P. VI, VII.

Ponds and ditches. Occasional.

L. Litherland (D.). Martin Mere (T.G.). 1873, Ditches between Haskayne and Formby (R.B.). Pond in Quarry N.W. of R. C. Chapel, Little Crosby (F.M.W.).

C. Frodsham (J.F.R.). Oxton Heath (H.S.F.). Pond in field between Willaston and Hargreave Hall (R.B.). Pond E. of Ness.

S. Savii (Seb. and Mauv.). Native. A. or P. VII.

Marshy ground near the coast. Rare.

L. 1873, Marsh by the bridge leading to Altcar Rifle Range (F.M.W.). 1897, Birkdale (J.A.W.).

F. 1894, Nant-y-Flint (Dr. G.).

S. setaceus (L.). Fig. 670. Bristle-like Club-rush. Native. P. VI-VIII.

Damp, sandy, and gravelly places. Common.

S. lacustris (L.). True Bull-rush. Native. P. VI, VII.

Ponds and marshes. Very rare.

C. 1888, Pond near the Birket, near Meols (R.B.).

S. Tabernaemontani (Gmel.). Fig. 671. Glaucous Bull-rush. Native. P. VII, VIII.

Ponds and marshes. Occasional.

L. Crosby Marsh (J.S.). Pond near Carr Lane, West Derby; Southport (D.).

C. Ditches about Seacombe and Bidston Marsh (H.). Ince Marshes (J.F.R.). Pond between Meols and Newton (R.B.). Bidston Ford (Dr. G.).

S. maritimus (L.). Fig. 672. Sea Club-rush. Native. P. VII-IX.

Marshy places near the coast. Frequent.

b. compactus (Koch).

1892, Southport (J.A.W.).

S. sylvaticus (L.). *Fig. 673.* Wood Club-rush. Native. P. VI, VII.

Damp shady places. Rare.

L. Sankey Canal Bank, near Parr Hall; Dean Wood, Up-holland; Pond behind the Cranes, Lathom (D.).

C. Bromborough Woods (Rev. H.; F.P.M.). Mollington.

S. Caricis (Retz.). *Fig. 674.* Broad-leaved Blysmus. Native. P. VI, VII.

(*Blysmus compressus* (Panz.).)

Damp places near the coast. Rare.

L. 1874, by mouth of the River Alt (R.B.); 1901, there yet.

S. rufus (Wahlb.). Narrow-leaved Blysmus. Native. P. VI, VII.

(*Blysmus rufus* (Link.).)

Damp places near the coast. Rare.

L. Sea shore S. of Southport (D.). Dungeon (Rev. H.). Marsh near the bridge leading to Altcar Rifle Range.

F. On the marsh below Puddington, and below Shotwick (Lord de T.; F.M.W.).

Authority for *Eleocharis* and *Scirpus*, C. B. Clarke.

Eriophorum (L.). Cotton-grass.

E. vaginatum (L.). *Fig. 675.* Hare's Tail Cotton-grass. Native. P. III-VI.

Boggy places. Occasional.

L. Gill Moss; Simmonswood Moss (H.). Crosby; Formby; Southport; Chat Moss (D.). Rainford (w.s.).

C. Bidston Marsh (D.).

E. angustifolium (Roth.). *Fig. 676.* Cotton-grass. Native. P. III-VI.

Boggy places. Frequent.

E. latifolium (Hoppe.). *Fig. 677.* Downy-stalked Cotton-grass. Native. P. V, VI.

Boggy places. Occasional.

L. Litherland; Gill Moss (H.). Formby; Southport; Simmonswood Moss (D.). Crosby Marsh (J.S.).

C. Bidston Marsh (H.).



Fig. 680. CAREX DISTICHA.



Fig. 681. CAREX ARENARIA.



Fig. 682. CAREX PANICULATA.



Fig. 683. CAREX VULPINA.



Fig. 684. CAREX MURICATA.

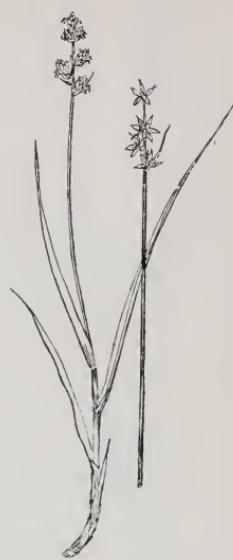


Fig. 685. CAREX ECHINATA.



Fig. 686. CAREX REMOTA.



Fig. 687. CAREX OVALIS.

Rhynchospora (*Vahl.*).

- R. alba** (*Vahl.*). *Fig. 678.* White Beak-Sedge. Native. P. VIII, IX.

Boggy places. Occasional.

L. Gill Moss (H.). Simmonswood Moss (D.).

C. Frodsham (J.F.R.). Alvanley; Dunham-on-the-Hill (R.B.).

Carex (*L.*). Sedge.

- C. pulicaris** (*L.*). *Fig. 679.* Flea-Sedge. Native. P. V, VI.

Boggy places. Occasional.

L. Formby Marsh (D.). Huyton Quarry (Rev. H.).

C. Bidston Hill (D.). Frodsham (J.F.R.). Swamp by the stream a short distance beyond Raby Watermill towards Thornton Grange (F.M.W.; R.B.). Thurstaston (Dr. G.).

- C. disticha** (*Huds.*). *Fig. 680.* Soft-brown-Sedge. Native. P. VI, VII.

Marshy places. Occasional.

L. Crosby Marsh; Ditches near Southport (D.). Plantation abutting on the shore at Speke (J.H.L.). Damp hollow near Hightown Station (R.B.).

C. Ditches below Wallasey (D.). Margin of S. U. Canal S. of Chorlton Bridge (Lord de T.; F.M.W.). 1875, near the Mount between Backford and Little Stanney; 1883, by the footpath from Great Meols to the Birket (R.B.). Bidston Ford; Canal at Ellesmere Port (Dr. G.).

- C. arenaria** (*L.*). *Fig. 681.* Sand-Sedge. Native. B. VI, VII.

Sandy shores from the River Dee to Southport. Common.

Sandy cops inland in Wirral. Frequent.

- C. teretiuscula** (*Good.*). Lesser Paniced Sedge. Native. P. VI, VII.

Damp places. Rare.

L. Formby; Altcar; &c. (D.).

C. Upton Meadows (D.).

NOTE.—This species has not been noted for a long time.

- C. paniculata** (*L.*). *Fig. 682.* Greater Paniced Sedge. Native. P. VI, VII.

Boggy places. Occasional.

L. Crosby and Formby Marshes; Woods near Gill Moss Chapel; Croxteth Park (D.). Eccleston (Rev. H.).

C. Between Oxton and Woodchurch; Bidston Marsh (H.). Noctorum (H.S.F.). Weaver Valley (J.F.R.). 1878, Banks of S. U. Canal between Mollington Viaduct and Coughall; Pond between Clatterbridge and Thornton Hough (R.B.). Stoke.

C. vulpina (*L.*). *Fig. 683.* Fox Sedge. Native. P. VI, VII.

Wet places. Frequent.

C. muricata (*L.*). *Fig. 684.* Greater Prickly Sedge. Native. P. V, VI.

Hedge banks and gravelly places. Occasional.

L. Hedge bank near West Derby (*J.H.L.*).

C. Near Frodsham (*D.*). Oxton (*Rev. H.*). Roadside E. of Mollington Station; near Backford (*Lord de T.*). Hedge bank between Greasby and Frankby; between Alvanley and Horns Mill; Roadside between Capenhurst and Shotwick (*F.M.W.*; *w.w.n.*; *J.H.L.*). Roadside at Storeton Hill; Stanney; Bank of River Gowey one mile from Ince (*R.B.*). Willaston; Roadside N. E. of Ness (*Dr. G.*).

F. Shotwick Marsh (*Dr. G.*).

C. divulsa (*Good.*). Grey Sedge. Native. P. VI.

Moist shady places. Rare.

C. 1875, in lane between Gayton and the Windmill (*F.M.W.*).

C. echinata (*Murr.*). *Fig. 685.* Little Prickly Sedge. Native. P. VI.

(*C. stellulata* (*Good.*)).

Boggy places. Occasional.

L. Crosby; Formby; Simmonswood Moss (*D.*). Warbreck Moor (*H.S.F.*).

C. Bidston; Wallasey (*D.*). Frodsham (*J.F.R.*). Raby (*H.S.F.*). 1875, Heswall Hill (*R.B.*).

C. remota (*L.*). *Fig. 686.* Remote-Spiked Sedge. Native. P. VI, VII.

Damp shady places. Frequent.

C. axillaris (*Good.*). Axillary-clustered Sedge. Native. P. VI.

Marshes. Occasional.

L. 1875, Lane leading N. from Tarbuck towards Halshead (*R.B.*).

C. Ditch at Ellesmere Port; Lane leading towards Ledsham Station from the Hooton to Willaston main road; Ditch near Clatterbridge (*R.B.*). Ditch near Badger's Rake (*F.M.W.*; &c.). Goldworth Lane, Stanney; Rake Lane near Dunham-on-the-Hill (*w.w.n.*; &c.).

C. elongata (*L.*). Elongated Sedge. Native. P. VI, VII.

Boggy places. Rare.

L. About Warrington (*D.*). Dungeon Marsh (*Rev. H.*).

C. Bebington Heath (*Rev. H.*).

NOTE.—Recent records are desirable.



Fig. 688. CAREX ACUTA.



Fig. 689. CAREX GOODENOWII.



Fig. 690. CAREX GLAUCA.



Fig. 691. CAREX PILULIFERA.



Fig. 692. CAREX PRÆCOX



Fig. 693. CAREX PANICEA



Fig. 694. CAREX PENDULA.



Fig. 695. CAREX SYLVATICA.

C. curta (*Good.*). White Sedge. Native. P. VI, VII.

Boggy places. Occasional.

L. Rainford Moss; Pimbo Lane; Simmonswood Moss (D.). 1891, in a bog near Aintree (J.A.W.).

C. 1875, Swampy hollow one mile S.W. of Manley (R.B.). Sutton Moss (Rev. H.). Frodsham (J.F.R.).

C. ovalis (*Good.*). *Fig. 687.* Oval-spiked Sedge. Native. P. VI, VII.

Damp fields and other places. Frequent.

C. stricta (*Good.*). Tufted Sedge. Native. P. IV, V.

Damp places. Rare.

L. Great Crosby; Woods at Ormskirk (D.).

C. "Wirral," many years ago (H. C. Watson).

NOTE.—Recent records are desirable.

C. acuta (*L.*). *Fig. 688.* Slender-spiked Sedge. Native. P. IV-VI.

Meadows and damp places. Rare.

L. Halewood; Ditton (D.).

C. Banks of the River Mersey, near Runcorn (D.). Footpath from Oxton to Woodchurch; Swampy ground near Burton Rocks (F.M.W.; Lord de T.). Shotwick; Backford; 1893, near Mollington.

C. Goodenowii (*J. Gay*). *Fig. 689.* Goodenow's Sedge. Native. P. V-VII.

(*C. vulgaris* (*Fries.*)).

Heaths, &c. Occasional.

L. Crosby; Formby; Southport (D.). Simmonswood Moss; Parr Flat (J.H.L.). Billinge (R.B.).

C. Frequent in Wirral (D.). Bidston Heath (H.S.F.). Frodsham (J.F.R.).

C. glauca (*Murr.*). *Fig. 690.* Glaucous Heath Sedge. Native. P. IV-VII.

(*C. flacca* (*Schreb.*))).

Meadows and damp places. Common.

C. pilulifera. *Fig. 691.* Round-headed Sedge. Native. P. V, VI. Heaths and damp places. Occasional.

L. Crosby Marsh (D.). Simmonswood Moss (W.H.). Langdale Wood, Rainhill (Rev. H.).

C. Oxton and Bidston Heaths (D.) Bromborough (H.S.F.). Near Raby Watermill (F.M.W.). N. slope of Helsby Hill (J.H.L.). Heswall and Thurstan Hills (R.B.).

C. praecox (*Jacq.*). *Fig. 692.* Vernal Sedge. Native. P. IV-VI.
(*C. verna* (*Chaix.*)).

Heaths and damp places. Occasional.

L. Allerton (J.S.).

C. Bidston Heath (D.). Overton Hills (J.F.R.). Thurstanston (H.S.F.). Near Raby Watermill; Banks of the Dell, near Hooton Racing Stables (F.M.W.; R.B.).

C. pallescens (*L.*). Pale Sedge. Native. P. VI, VII.

Woods and damp shady places. Rare.

L. Formby; Crosby; Southport; between Rainford and Pimbo Lane (D.). Ormskirk (H.S.F.). Huyton Quarry (Rev. H.).

C. Dunham to Alvanley.

C. panicea (*L.*). *Fig. 693.* Pink-leaved Sedge. Native. P. V, VI.

Meadows and damp places. Frequent.

C. pendula (*Huds.*). *Fig. 694.* Great Pendulous Sedge. P. VI, VII.

Woods and damp shady places. Rare.

L. Between Croxteth Hall and Knowsley (D.). 1884, margin of the lake in Ince Blundell Park, (?) introduced (R.B.).

C. Aston Wood (D.). Rockavage (J.F.R.). Near Raby; the Birkett; Willaston.

NOTE.—Recent confirmation is needed for the Wirral stations.

C. strigosa (*Huds.*). Loose-spiked Wood Sedge. Native. P. V, VI.

Woods and damp shady places. Very rare.

L. Mill Wood, Hale (J.S.).

C. Formerly near Poulton Bridge (w.s.).

C. sylvatica (*Huds.*). *Fig. 695.* Pendulous Wood Sedge. Native. P. VI, VII.

Damp woods and hedge banks. Frequent.

C. laevigata (*Sm.*). Smooth-stalked Sedge. Native. P. VI, VII.

Woods and damp shady places. Rare.

L. Wood near Knowsley (D.). Huyton Quarry (Rev. H.). Bath Wood, Ormskirk (T.W.).

C. Near Raby Watermill (F.M.W.).

C. binervis (*Sm.*). Green-ribbed Sedge. Native. P. IV-VI.

Heaths. Rare.

C. Oxton and Bidston (D.). S. side of Eastham Wood (F.M.W.). Heswall Hill (R.B.).



Fig. 696. CAREX DISTANS.



Fig. 697. CAREX EXTENSA.



Fig. 698. CAREX FLAVA.



Fig. 699. CAREX HIRTA.



Fig. 700. CAREX PSEUDO-CYPERUS.



Fig. 701. CAREX RIPARIA.



Fig. 702. CAREX ROSTRATA.



Fig. 703. CAREX VESICARIA.

C. distans (*L.*). *Fig. 696.* Distant-spiked Sedge. Native. P. VI, VII.

Marshy places. Occasional.

L. Dungeon Marsh; Bank of River Alt, near Hightown Station (R.B.).

C. Bidston Marsh (D.). Banks of the River Mersey between Eastham Ferry and Ellesmere Port; Bromborough Pool (F.M.W.; R.B.). Very large at head of Barnston Dale (Dr. G.).

F. Between Burton Point and Puddington on the marsh (Lord de T.; F.M.W.), and extending to Shotwick Marsh (R.B.).

C. fulva (*Good.*). Tawny Sedge. Native. P. VI.

Marshy ground. Rare.

C. Near Raby Watermill (F.M.W.).

C. extensa (*Good.*). *Fig. 697.* Long-bracteated Sedge. Native. P. VI, VII.

Salt marshes. Occasional.

L. Mouth of the River Alt; Southport (D.). Dungeon Marsh (Rev. H.). Dingle shore (J.H.L.). Inside Walton Gaol walls (J.A.W.).

C. Bromborough Pool (H.). Bidston Marsh (D.). Salt marsh between Burton Point and Puddington (Lord de T.; F.M.W.). 1883, Macdona's sea wall at West Kirby (R.B.).

b. pumila (*Anders.*).

1894, Southport (J.A.W.).

C. flava (*L.*). *Fig. 698.* Yellow Sedge. Native. P. V, VI.

Sandhills. Very rare.

L. 1899, Warbreck Moor (J.A.W.).

b. minor (*Towns.*).

C. Sandy road from Wallasey to the shore (Lord de T.).

c. lepidocarpa (*Tausch.*).

L. Among the sandhills between Crosby and Birkdale (R.B.).

C. 1883, Thurstan Hill (R.B.).

C. Ederi (*Ehrh.*). Eder's Sedge. Native. P. VI, VII.

Damp sandy places. Rare.

L. 1876, Sandy field by Headbolt Lane, between Ainsdale and Formby Hall (R.B.). 1892, Walton; 1893, Southport (J.A.W.).

C. 1875, Sandy road from Wallasey to the shore (Lord de T.).

C. hirta (*L.*). *Fig. 699.* Hairy Sedge. Native. P. VI, VII.

Damp places. Occasional.

L. Hightown (*R.B.*). Speke; Skelmersdale.

C. Storeton Hill; Bidston; Bromborough (*D.*). Great Meols (*J.H.L.*). Near Shotwick; Backford; Heath Lane, Stoke (*Dr. G.*).

C. Pseudo-cyperus (*L.*). *Fig. 700.* Cyperus-like Sedge. Native. P. VI, VII.

Ponds and ditches. Frequent.

C. paludosa (*Good.*). Lesser Pond Sedge. Native. P. V, VI.

Damp places. Very rare.

L. 1885, Akers Lane, near Lydiate (*R.B.*).

C. Upton Meadows (*D.*). Weaver Valley.

C. riparia (*Curtis*). *Fig. 701.* Greater Pond Sedge. Native. P. V, VI.

Ditches and streams. Frequent.

C. rostrata (*Stokes*). *Fig. 702.* Bottle Sedge. Native. P. V, VI.

(*C. ampullacea* (*Good.*)).

Ponds and ditches. Rare.

L. Allerton (*J.S.*). Ormskirk (*H.S.F.*). Ditches between Formby and Haskayne (*R.B.*).

F. 1894, Nant-y-Flint (*Dr. G.*).

C. vesicaria (*L.*). *Fig. 703.* Bladder Sedge. Native. P. V, VI.

Damp places. Very rare.

L. Between Runcorn and Warrington (*D.*).

C. By Rake Lane, one mile from Dunham-on-the-Hill (*F. M. W.; W. W. N.*).

Authority for Carex—Arthur Bennett.

GRAMINEÆ.

Panicum (*L.*).

P. sanguinale. *Fig. 704.*

L. 1872, Ballast at Liverpool (*J.H.L.*). 1898, as a casual on new embankment N. of Southport (*J.A.W.*).

C. 1900, Hedge bank, W. of Mount Wood, Prenton (*Mrs. W.*).

P. Crus-galli (*L.*). *Fig. 705.* Loose Panic Grass. Alien. A. VII.

L. By the canal at Aintree, annually (*J.A.W.*).

C. As a casual about Birkenhead Docks.



Fig. 704. *PANICUM SANGUINALE*.



Fig. 705. *PANICUM CRUS-GALLI*.



Fig. 706. *SETARIA VIRIDIS*.

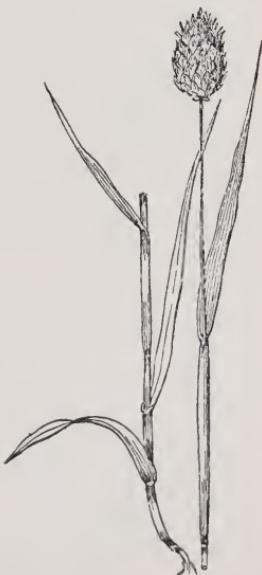


Fig. 707. *PHALARIS CANARIENSIS*.



Fig. 708. *PHALARIS PARADOXA*.



Fig. 709. *PHALARIS ARUNDINACEA*.

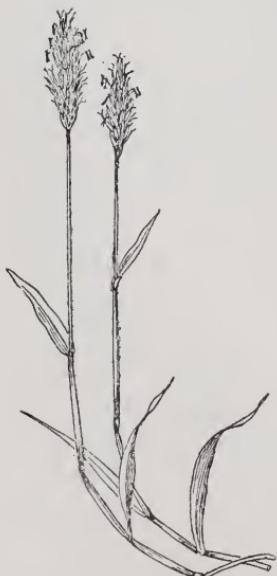


Fig. 710. *ANTHOXANTHUM ODORATUM*.



Fig. 711. *ALOPECURUS GENICULATUS*.

Setaria (*Pal. de Beauv.*). Bristle Grass.

S. viridis (*Beauv.*). *Fig. 706.* Green Bristle Grass. Casual. A. VII, VIII.

L. 1874, Sefton Park (H.S.F.). Bootle and Aintree (J.A.W.).

C. Frodsham (J.F.R.). 1871, Birkenhead Docks (R.B.). 1899, Bank at Hooton Station (Dr. G.).

S. glauca (*Beauv.*). Glaucous Bristle Grass. Alien. A. IX.

L. 1874, as a casual in Sefton Park (H.S.F.). Bootle and Aintree (J.A.W.).

Phalaris (*L.*) Reed Grass.

P. canariensis (*L.*). *Fig. 707.* Canary Grass. Alien. A. VII.

As a casual in waste places near houses. Occasional.

L. 1901, waste ground in Calderstones Park, Liverpool (Dr. G.).

C. Oxton; Bidston; Wallasey; Irby; Grange Hill; Hoylake; Heswall (Dr. G.).

P. paradoxa (*L.*). *Fig. 708.* Alien.

L. 1890, on Aintree canal banks (J.A.W.).

C. Has been found as a casual at Birkenhead Docks. 1890, at Grange (R.B.).

var. minor (*Retz.*).

L. 1891, on Aintree canal bank (J.A.W.).

P. arundinacea (*L.*) *Fig. 709.* Reed Canary Grass. Native. P. VII, VIII.

Ponds and ditches. Common.

Anthoxanthum (*L.*).

A. odoratum (*L.*). *Fig. 710.* Sweet-scented Vernal Grass. Native. P. V, VI.

Woods and fields. Very common.

A. Puelii (*Lec. and Lam.*). Alien.

C. Has been found as a casual about the docks at Seacombe.

Alopecurus (*L.*). Fox-tail Grass.

A. agrestis (*L.*). Slender Fox-tail Grass. Native. A. V-VII.

Fields and waste places. Occasional.

L. Crosby; Formby; Southport (D.). 1874, about the railway siding at Hightown Station (R.B.).

C. About Grange Landmark (D.).

A. geniculatus (*L.*). *Fig. 711.* Bent Fox-tail Grass. Native.
P. VII, VIII.

Marshy places. Common.

A. pratensis (*L.*). *Fig. 712.* Meadow Fox-tail Grass. Native.
P. V-VII.

Fields and hedge banks. Common.

***Milium* (*L.*).** Millet.

M. effusum (*L.*). *Fig. 713.* Millet Grass. Native. P. VI, VII.
Damp woods and shady places. Occasional.

L. Speke (W.). Old Hut, Hale (J.s.). Bath Wood, Ormskirk (T.W.).

C. Weaver Valley (J.F.R.). Eastham (D.). 1875, Wood in Hooton Park, bordering where the Ship Canal now is (F.M.W.; R.B.).

***Phleum* (*L.*).**

P. pratense (*L.*). *Fig. 714.* Cat's-tail Grass. Native. P. VI, VII.

Meadows and hedge banks. Common.

b. nodosum (*L.*).
c. stoloniferum (*Bab.*). } Have been observed but not localised.

P. arenarium (*L.*). *Fig. 715.* Sea-side Cat's-tail Grass. Native.
A. VI, VII.

The sandhills from the R. Dee to Southport. Common.

***Agrostis* (*L.*).** Bent Grass.

A. canina (*L.*). *Fig. 716.* Brown Bent Grass. Native. P. VI, VII.

Moors, &c. Common.

A. alba (*L.*). Marsh Bent Grass. Native. P. VII, VIII.
Meadows and damp places. Common.

b. stolonifera (*L.*).

L. Damp depressions among the sandhills; and on the shore at Garston (J.s.).

c. maritima (*Mey.*).

L. 1897, Southport (J.A.W.).

C. 1893, Wallasey sandhills (Dr. G.).

d. coarctata (*Hoffm.*).

L. 1896, Southport; 1897, Ainsdale (J.A.W.).

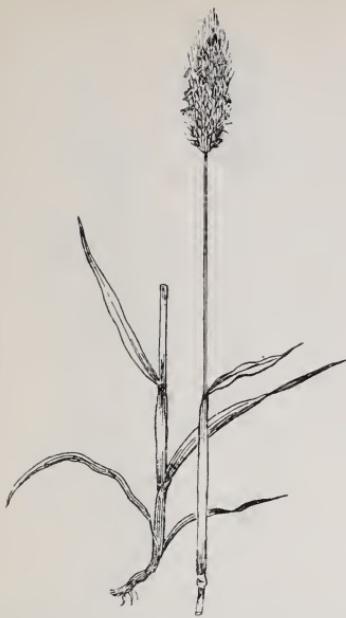


Fig. 712. ALOPECURUS PRATENSIS.



Fig. 713. MILIUM EFFUSUM.



Fig. 714.
PHLEUM PRATENSE.



Fig. 715.
PHLEUM ARENARIUM.



Fig. 716.
AGROSTIS CANINA.

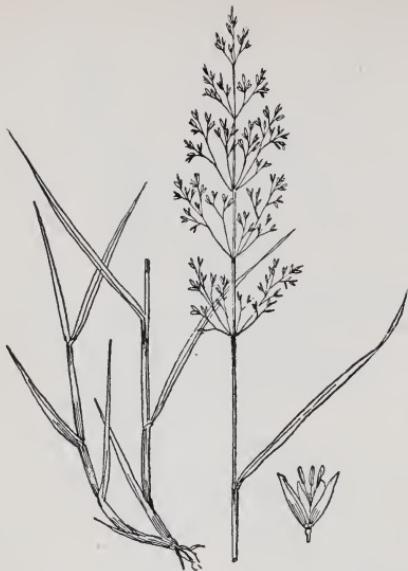


Fig. 517. *AGROSTIS VULGARIS.*



Fig. 718. *POLYPOGON MONSFELIENSIS.*



Fig. 719. *CALAMAGROSTIS EPIGEIOS.*



Fig. 720. *APERA SPICA-VENTI.*

- A. vulgaris** (*With.*). *Fig. 717.* Fine Bent Grass. Native. P. VI, VII.
Meadows and hedge banks. Common.

***Polypogon* (*Desf.*).**

- P. monspeliensis** (*Desf.*). *Fig. 718.* Annual Beard Grass. Casual. A. VI, VII.
Salt Marshes. Rare.
C. 1871, Birkenhead ballast (R.B.).

***Calamagrostis* (*Adans.*).** Small-reed.

- C. epigeios** (*Roth.*). *Fig. 719.* Wood Small-reed. Native. P. VII, VIII.

(*Arundo epigeios*, (*L.*).)

Damp wood and hedges. Occasional.

L. Claybanks of the Mersey at Otterspool and Aigburth (H.). Kirkby (J.H.L., &c.). Bath Wood, Ormskirk (T.W.).

C. Eastham (D.). 1875, Ditch a short distance inland between Heswall Point and Dawpool (R.B.).

- C. lanceolata** (*Roth.*). Purple-flowered Small Reed. Native. P. VI, VII.

(*Arundo calamagrostis* (*L.*)).

Damp woods and hedges. Rare.

L. Bath Wood, Ormskirk (T.W.). Southport (J.G.).

***Apera* (*Adans.*).** Wind Grass.

- A. Spica-venti** (*Beauv.*). *Fig. 720.* Spreading Wind Grass. Casual. A. VI, VII.

L. 1901, Ballast at Aintree (J.A.W.).

C. Near the Birkenhead Docks (D.).

***Ammophila* (*Host.*).**

- A. arundinacea** (*Host.*). *Fig. 721.* Sea Reed. Native. P. VII, VIII.

(*Psamma arenaria*).

On the sandhills from the R. Dee to Southport. Common.

Frequently planted in order that its roots may fix the sand.

***Aira* (*L.*).** Hair Grass.

- A. caryophyllea** (*L.*). *Fig. 722.* Silvery Hair Grass. Native. P. VI, VII.

Dry gravelly and heathy places. Common.

A. praecox (*L.*). *Fig. 723.* Early Hair Grass. Native. P. V.
Dry banks, &c. Common.

Deschampsia (*Beauv.*). *Aira* (*L.*).

D. caespitosa (*Beauv.*). *Fig. 724.* Tufted Hair Grass. Native.
P. VI, VII.
Woods, &c. Common.

D. flexuosa (*Trin.*). *Fig. 725.* Waved Hair Grass. Native. P.
VI-VIII.
Dry woods and heaths. Frequent.

Holcus (*L.*). Soft Grass.

H. mollis (*L.*). Creeping Soft Grass. Native. P. VII, VIII.
Woods and meadows. Common.

H. lanatus (*L.*). *Fig. 726.* Meadow Soft Grass. Native. P.
VI, VII.
Meadows. Common.

Trisetum (*Pers.*). *Avena* (*L.*).

T. flavescens (*Beauv.*). *Fig. 727.* Yellow Oat Grass. Native. P.
VII, VIII.

Dry fields and hedge banks. Rare in L. Occasional in C.
L. 1877, Mersey Road, Aigburth (R.B.).
C. About Frodsham and Runcorn; New Brighton (D.).
Heswall shore; roadside between Hooton Station and Willaston (R.B.). Willaston; Ledsham; Shotwick; Little Storeton (Dr. G.).

Avena (*L.*). Oat.

A. pubescens (*L.*). Downy Oat. Native. P. V, VI.
Fields and hedge banks. Rare.
L. Knot's Hole, Dingle (J.S.).
C. Near Seacombe; Hilbre (H.). West Kirby (Miss C. G.).

A. strigosa (*Schreb.*). Bristle-pointed Oat. Alien. A. VI, VII.
Cornfields. Rare.

NOTE.—Recent records are desirable.

A. fatua (*L.*). *Fig. 728.* Wild Oat. Denizen. A. VI-VIII.
Corn fields. Rare.
L. Hale; Formby (D.). 1901, Ballast at Aintree (J.A.W.).

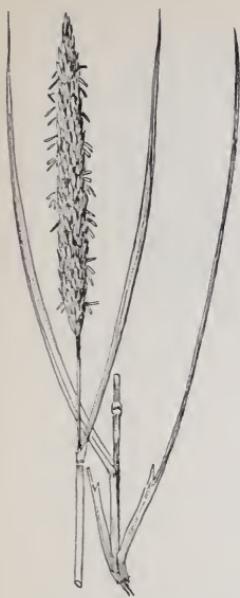


Fig. 721.

AMMOPHILA ARUNDINACEA.



Fig. 722.

AIRA CARYOPHYLLEA.



Fig. 723.

AIRA PRÆCOX.



Fig. 724.

DESCHAMPSSIA CÆSPITOSA.



Fig. 725.

DESCHAMPSSIA FLEXUOSA.



Fig. 726.

HOLCUS LANATUS.



Fig. 727. *TRISETUM FLAVESCENS.*



Fig. 728. *AVENA FATUA.*



Fig. 729. *ARRHENATHERUM AVENACEUM.*



Fig. 730. *SIEGLINGIA DECUMBENS.*

Arrhenatherum (*Pal. de Beauv.*). Oat Grass.

A. avenaceum (*Beauv.*). *Fig. 729.* False Oat Grass. Native. P. VI, VII.

Meadows and hedge banks. Common.

b. nodosum (*Reichb.*).

Is occasionally met with.

Sieglingia (*Triodia, R. Br.*).

S. decumbens (*Bernh.*). *Fig. 730.* Decumbent Heath Grass. Native. P. VII, VIII.

Dry fields and heaths. Frequent.

Phragmites (*Trin.*). Reed.

P. communis (*Trin.*). *Fig. 731.* Great Reed. Native. P. VII, VIII.

Ponds and marshes. Common.

(*Arundo Phragmites* (*L.*)).

Cynosurus (*L.*).

C. cristatus (*L.*). *Fig. 732.* Crested Dog's-tail Grass. Native. P. VI-VIII.

Meadows and hedge banks. Common.

C. echinatus (*L.*). *Fig. 733.* Prickly Dog's-tail Grass. Casual. Native in the Channel Isles.

L. 1874, Ullet Road, Sefton Park (R.B.). 1901, Ballast at Aintree (J.A.W.).

C. 1894, as a casual at Heswall (R.B.). 1896, Thurstanston (Dr. G.).

Koeleria (*Pers.*).

K. cristata (*Pers.*). Crested Hair Grass. Colonist. P. VI, VII.

Meadows and hedge banks. Very rare.

L. Aintree (H.S.F.). Recent confirmation is desirable.

Molinia (*Mænch.*).

M. coerulea (*Mænch.*). *Fig. 734.* Purple Heath Grass. Native. P. VII, VIII.

(*M. varia* (*Schrink*)).

Heaths. Frequent.

vars. : *major* (*Bab.*) and *breviramosa* (*Parn.*).

L. 1897, as casuals, Simmonswood Moss (J.A.W.).

Catabrosa (*Pal. de Beauv.*).

C. aquatica (*Beauv.*). *Fig. 735.* Water Whorl Grass. Native. P. V, VII.

Ponds and marshy places. Occasional.

L. Crosby; Formby (D.). Stream, St. Michael's Hamlet (H.S.F.). Ditches inland of Ainsdale; Ditches between Birkdale and Halsall (R.B.).

C. Langfields, West Kirby (Dr. G.). 1891, Helsby Marsh.

b. littoralis (*Parn.*).

C. Parkgate Shore (W.). Damp places along sandy sea shores.

Melica (*L.*).

M. uniflora (*L.*). *Fig. 736.* Wood Melic Grass. Native. P. V-VII.

Woods and shady places. Occasional.

L. Between Lytham and Blythe Hall, near Ormskirk (W.). Ince; Croxteth (D.). N. W. slope of Billinge Beacon (R.B.). Dean Wood, Upholland (Dr. G.).

C. Bidston; Eastham (D.). Prenton (H.S.F.). Frodsham; Rock Savage Woods (J.F.R.).

Dactylis (*L.*).

D. glomerata (*L.*). *Fig. 737.* Rough Cock's-foot Grass. Native. P. VI, VII.

Meadows and hedge banks. Very common.

Briza (*L.*). Quaking Grass.

B. media (*L.*). *Fig. 738.* Quaking Grass. Native. P. VI, VII.

Dry fields and hedge banks. Common.

Poa (*L.*). Meadow Grass.

P. annua (*L.*). *Fig. 739.* Annual Meadow Grass. Native. A. IV-IX.

Meadows and waste places. Very common.

P. nemoralis (*L.*). Wood Meadow Grass. Native. P. VI, VII.

Woods. Rare.

L. Near Warrington (W. Wilson).

C. Hooton Park (J.S.).

P. compressa (*L.*). Flat-stemmed Meadow Grass. Casual. P. VI-VIII.

Walls and hedge banks. Very rare.

L. 1864, Parkfield (H.S.F.). 1902, Walls in Walton Gaol (J.A.W.).



Fig. 731. *PHRAGMITES COMMUNIS.*

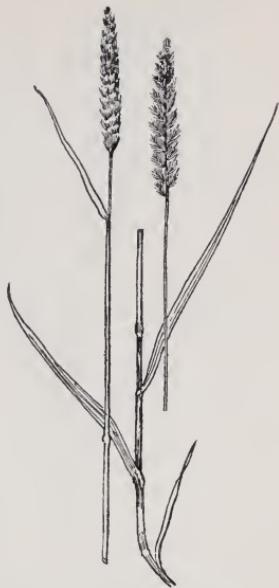


Fig. 732. *CYNOSURUS CRISTATUS*



Fig. 733.
CYNOSURUS ECHINATUS.



Fig. 734.
MOLINIA CŒRULEA.



Fig. 735.
CATABROSA AQUATICA.



Fig. 736. *MELICA UNIFLORA*.



Fig. 737. *DACTYLIS GLOMERATA*.



Fig. 738. *BRIZA MEDIA*.



Fig. 739. *POA ANNUA*.



Fig. 740. *POA PRATENSIS*.

c. polynoda (*Parn.*).

C. 1863, about new made roads at Birkenhead (*H.S.F.*). Between Parkgate and Leighton Hall (*F.M.W.*).

NOTE.—Probably introduced with ballast.

P. pratensis (*L.*). *Fig. 740.* Smooth-stalked Meadow Grass. Native. P. VI, VII.

Meadows and hedge banks. Common.

b. sub-caerulea (*Sm.*).

Common on the sandhills from the R. Dee to Southport.

P. palustris (*L.*).

1901, Aintree, as a casual (*J.A.W.*).

P. trivialis (*L.*). *Fig. 741.* Roughish Meadow Grass. Native. P. VI, VII.

Meadows and roadsides. Common.

Glyceria (*R. Br.*) + **Sclerochloa** (*Beauv.*).

G. fluitans (*R. Br.*). *Fig. 742.* Floating Meadow Grass. Native. P. VII, VIII.

Ponds and marshy places. Common.

G. plicata (*Fries.*). Branched Floating Meadow Grass. Native. P. VII.

b. pedicillata (*Towns.*).

Ponds and marshy places. Frequent.

L. Canal bank between Bootle and Litherland (*F.M.W.*).

C. Frodsham (*J.F.R.*) Pond between Prenton and Woodchurch (*R.B.*). Half to one mile S. of Parkgate (*Lord de T.*; *F.M.W.*). Bidston Ford (*Dr. G.*).

F. Marsh below Shotwick (*Dr. G.*).

G. aquatica (*Sm.*). *Fig. 743.* Reed Meadow Grass. Native. P. VII, VIII.

Marshes. Occasional.

L. Southport (*D.*). N. E. of Garston (*J.H.L.*). Dungeon Marsh (*Rev. H.*). Ince Blundell (*H.S.F.*). Canal bank between Bootle and Litherland; at intervals to Aintree; outlet of a stream on the shore at Speke (*F.M.W.*). Canal banks at Maghull and extending beyond Lydiate (*R.B.*).

C. In a large pond near Rock Savage (*D.*). 1877, Banks of S. U. Canal below Backford (*R.B.*).

F. Marsh and dykes below Shotwick; Marsh below Blacon Point (*Dr. G.*).

G. maritima (*Wahl.*). Creeping Sea Meadow Grass. Native. P. VII, VIII.

Frequently met with along the sea coast and river estuaries in L. and C.

G. distans (*Wahl.*). Reflexed Meadow Grass. Native. P. VII, VIII.

Damp sandy places. Occasional.

L. Kirkdale (H.S.F.).

C. Bidston Marsh; Tranmere Shore (H.). 1894, Leasowe (R.B.).

***Festuca* (L.) + *Sclerochloa* (Beauv.).**

F. procumbens (*Kunth.*). *Fig. 744.* Procumbent Sea Meadow Grass. Native. A. VI, VII.

Salt Marshes. Rare.

L. Canal between Sandhills Bridge and Miller's Bridge (D.).

C. About Birkenhead Docks (H.S.F.). 1894, Leasowe (R.B.).

F. rigida (*Kunth.*). *Fig. 745.* Hard Meadow Grass. Native. A. VI, VII.

Damp sandy places. Occasional.

L. Formby; Southport (D.).

C. New Brighton (H.). Eastham (D.). Heswall near the shore (F.M.W.). Behind Leasowe Embankment (Dr. G.).

F. loliacea (*Huds.*). Dwarf Wheat Meadow Grass. Native. A. VI, VII.

Sandy shores. Very rare.

C. Near Parkgate (D.).

F. uniglumis (*Soland*). *Fig. 746.* Single-glumed Fescue Grass. Native. A. VI, VII.

Sandhills. Occasional.

L. Crosby; Formby to Southport (D.).

C. Wallasey (H.).

F. myurus (L.). *Fig. 747.* Barren Fescue Grass. Native. A. VII, VIII.

Walls and sandy places. Rare.

L. Crosby; Formby (D.).

C. Frequent in Wirral (D.). Claughton (H.S.F.). Irby Mill Hill (Dr. G.).

F. sciurooides (*Roth.*). *Fig. 748.* Slender Fescue Grass. Native. A. VII, VII.

Sandy places. Occasional.

C. About Bidston; Caldy; Poole Hall (Dr. G.).



Fig. 741. *POA TRIVIALIS.*



Fig. 742. *GYLCERIA FLUITANS.*



Fig. 743.
GLYCERIA AQUATICA.



Fig. 744.
FESTUCA PROCUMBENS.



Fig. 745.
FESTUCA RIGIDA.



Fig. 746.
FESTUCA UNIGLUMIS.



Fig. 747
FESTUCA MYURUS.



Fig. 748.
FESTUCA SCIUROIDES



Fig. 749
FESTUCA OVINA.



Fig. 750.
FESTUCA RUBRA.



Fig. 751.
FESTUCA ELATIOR.

F. ovina (*L.*). *Fig. 749.* Sheep's Fescue Grass. Native. P. VI-VIII.

Meadows, sandy places, especially along the foreshores. Common.

F. rubra (*L.*). *Fig. 750.* Creeping Fescue Grass. Native. P. VI, VII.

Meadows and sandhills. Frequent.

b. arenaria (*Osb.*).

Common on the sandhills.

F. fallax (*Th.*). Meadow Fescue Grass. Native. P. VI, VII.

Meadows and damp places. Common.

F. elatior (*L.*). *Fig. 751.* Tall Fescue Grass. Native. P. VI, VII.

River banks and damp places. Occasional.

L. Otterspool; Garston; Speke; Hale (D.). Bath Wood, Ormskirk (T.W.).

C. Egremont (H.). Rock Ferry (D.). Claybanks, Parkgate (H.S.F.). Mollington; Shotwick (Dr. G.).

***Bromus* (*L.*).**

B. giganteus (*L.*). *Fig. 752.* Tall Bearded Brome Grass. Native. P. VII, VIII.

Damp woods and shady places. Frequent.

B. asper (*Murr.*). *Fig. 753.* Hairy Wood Brome Grass. Native. A. or P. VI, VII.

(*B. ramosus* (*Huds.*)).

Damp woods and shady places. Frequent.

B. maximus (*Desf.*). Great Brome Grass. Casual. P. VII.

C. 1871, on Birkenhead ballast (J.H.L.).

NOTE.—Native in the Channel Isles.

B. lanceolatus (*Roth.*).

C. 1871, as a casual on Birkenhead ballast (J.H.L.).

B. sterilis (*L.*). *Fig. 754.* Barren Brome Grass. Native. A. VI, VII.

Meadows and hedge banks. Common.

B. secalinus (*L.*). Smooth Rye Brome Grass. Colonist. A. or B. VI, VII.

Cornfields. Occasional (D.).

L. Canal bank between Bootle and Litherland (R.B.). Corn-

field between Walton and Fazakerley (F.M.W.). Waste ground at S. end of Liverpool (J.H.L.).

C. By the S. U. Canal three-quarter mile N. E. of Mollington Bridge (Lord de T.; F.M.W.).

B. racemosus (*L.*). Smooth Brome Grass. Native. A. or B. VI, VII.

Fields and hedge banks. Rare.

L. Cornfields at Litherland (w.s.). 1901, Canal banks, Aintree (J.A.W.).

B. commutatus (*Schrad.*). Tumid Field Brome Grass. Native. A. or B. VI, VII.

Fields and hedge banks. Frequent.

L. Crosby (R.B.; J.H.L.).

B. mollis (*L.*). *Fig. 755.* Soft Brome Grass. Native. A. or B. VI-VIII.

Meadows and roadsides. Very common.

B. arvensis (*L.*). Taper Field Brome Grass. Alien. A. VII, VIII.

Cornfields and waste places. Very rare.

L. Formby (D.). 1901, Canal banks at Aintree (J.A.W.).

C. 1849, near Birkenhead Docks (D.).

B. unioloides (*Kunth.*).

L. 1897, as a casual at Aintree (J.A.W.).

C. 1893, at Birkenhead (J.A.W.).

Brachypodium (*Beauv.*).

B. sylvaticum (*Roem et S.*). *Fig. 756.* Slender False Brome Grass. Native. P. VI, VII.

(*B. gracile* (*Beauv.*)).

Woods and hedge banks. Common.

Lolium (*L.*). Rye Grass.

L. perenne (*L.*). *Fig. 757.* Perennial Rye Grass. Native. P. VI-VIII.

Fields and waste places. Very common.

c. *multiflorum* (*Lam.*). Have been observed in the district.

d. *aristatum* (*Schum.*).)

e. *italicum* (*Braun.*). Is commonly sown for hay in our district.



Fig. 752. *BROMUS GIGANTEUS.*



Fig. 753. *BROMUS ASPER.*



Fig. 754. *BROMUS STERILIS.*



Fig. 755. *BROMUS MOLLIS.*



Fig. 756.

BRACHYPODIUM SYLVATICUM.



Fig. 757.

LOLIUM PERENNE.



Fig. 758.

LOLIUM TEMULENTUM.



Fig. 759. *AGROPYRON REPENS*.



Fig. 760. *AGROPYRON ACUTUM*

- L. temulentum (L.). Fig. 758.** Darnel. (?) native. A. VI, VII.
Cornfields and the borders of fields. Occasional.
L. The type form in waste ground, Seven Pits, Walton
(J.A.W.).
- b. arvense (With.)* is the form most commonly met with.
- Agropyron (J. Gaert.). Triticum (L.).** Wheat or Couch Grass.
- A. caninum (Beauv.).** Fibrous-rooted Wheat. Native. P.
VII, VIII.
Woods and hedge banks. Very rare.
- L. Southport (D.). Roadside near Ormskirk (J.G.). Speke
(Miss C. G.).
C. 1873, Woodhouses near Frodsham (J.F.R.).
- A. repens (Beauv.). Fig. 759.** Creeping Couch Grass. Native.
P. VI-VIII.
Fields and waste places. Frequent.
- A. pungens (R. and S.).** Erect Sea Couch Grass. Native. P. VII.
Sea shores. Very rare.
C. 1874, on the shore a short distance N. of the Limekiln at
Parkgate (Lord de T.).
- A. acutum (R. and S.). Fig. 760.** Decumbent Sea Couch Grass.
Native. P. VII, VIII.
Sandy seashores. Rare.
L. 1873, Sandy ground between Little Brighton and
Waterloo; N. of the Promenade at Southport (J.H.L.). Sand-
hills at Seaford (F.M.W.).
C. 1873, Wallasey Sandhills (F.M.W.). 1875, Sandy ground
at Heswall Point (R.B.).
F. 1894, Foreshore below Flint Castle (Dr. G.).
- A. junceum (Beauv.). Fig. 761.** Rushy Sea Wheat. Native. P.
VII, VIII.
Sandhills from the River Dee to Southport. Common.
- Lepturus (R. Br.).***
- L. filiformis (Trin.). Fig. 762.** Sea Hard Grass. Native. A.
VI-VIII.
Salt marshes.
L. Fidler's Ferry; Ditton Marsh (H.S.F.). 1876, Marsh
fields, near the Decoy, Hale (R.B.). Between Otterspool and
Garston (D.). 1893, Crossens (J.A.W.).
C. Between Tranmere and Rock Ferry (D.). Parkgate
(Rev. H.). 1876, River bank, near Heswall Point (R.B.).

b. incurvatus (*Trin.*).

Is occasionally found as a ballast plant (R.B.).

***Nardus* (*L.*).**

***N. stricta* (*L.*).** *Fig. 763.* Mat Grass. Native. P. VI, VII.
Moors and heaths. Frequent.

***Hordeum* (*L.*).** Barley.

***H. sylvaticum* (*Huds.*).** Wood Barley. Native. P. VI, VII.
Woods and shady places. Very rare.
L. Bathwood, Ormskirk (T.W.).
NOTE.—Recent confirmation is desirable.

***H. pratense* (*Huds.*).** *Fig. 764.* Meadow Barley. Native. A.
VII, VIII.

(*H. secalinum* (*Schreb.*)).

Damp meadows. Occasional.

L. Ditton Marsh (H.S.F.). Meadow by the River Alt near Formby Lighthouse; Fields about the Decoy, Hale (R.B.).

C. Bidston Marsh (H.). Near Seacombe; Tranmere Pool; Bromborough (D.). Frodsham Marsh (J.F.R.). Margin of Horns Mill Pool, near Helsby (F.M.W.; W.W.N.). 1880, between Ince and Ellesmere Port; 1883, between Hoylake and Newton (R.B.). Near Bebington; Bidston Ford; Leasowe; Willaston (Dr. G.).

F. Near the Higher Ferry (Dr. G.).

***H. murinum* (*L.*).** *Fig. 765.* Wall Barley. Native. A. VI-VIII.
Waste places. Frequent.

***H. maritimum* (*With.*).** Sea-side Barley. Casual. A. VI, VII.
Marshy places near the coast. Very rare.
C. On West Kirby shore (Dr. G.).

***Elymus* (*L.*).**

***E. arenarius* (*L.*).** *Fig. 766.* Upright Sea Lyme Grass. Native.
P. VI-VIII.

Sandhills. Occasional.

L. Southport (D.). Sandhills N. of Blundellsands (R.B.).

C. Hoylake (J.H.L.). Macdona's sea-wall at West Kirby, stated to have been planted there (R.B.).

Authority for *Gramineæ*, Professor E. Haeckel.



Fig. 761.

AGROPYRON JUNCEUM.



Fig. 762.

LEPTURUS FILIFORMIS

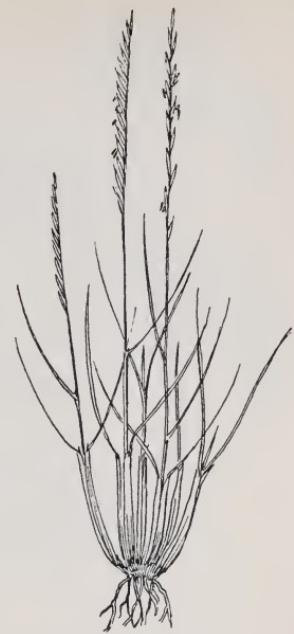


Fig. 763.

NARDUS STRICTA.



Fig. 764.

HORDEUM PRATENSE.



Fig. 766.

ELYMUS ARENARIUS.

Fig. 765.

HORDEUM MURINUM.



Fig. 767. *PTERIS AQUILINA*.



Fig. 768. *LOMARIA SPICANT*.



Fig. 769. *ASPLENIUM ADIANTUM-NIGRUM*.



Fig. 770. *ASPLENIUM MARINUM*.

Class III.—CRYPTOGAMEÆ.

FILICES.

Pteris (Roth.). Bracken.

- P. aquilina** (L.). *Fig. 767.* Bracken or Brake Fern. Native.
P. VII.
Woods and heathy places. Common.

Lomaria (Willd.). Hard Fern.

- L. Spicant** (Desv.). *Fig. 768.* Northern Hard Fern. Native.
P. VII.

(*Blechnum boreale* (Sw.).)

Woods and heathy places. Occasional.

L. Simmonswood; Dungeon; Kirkby.

C. Eastham; Bidston. Woods at Raby Mere; Barnston Dale; by Chester Road, E. of Neston (Dr. G.).

Asplenium (L.). Spleenwort.

- A. Adiantum-nigrum** (L.). *Fig. 769.* Black-stalked Spleenwort.
Native. P. VI-IX.

Rocks and walls. Occasional.

L. Kirkby (H.). Old wall near Sefton Church; New Hut, Hale; Old stone wall behind Billinge Beacon; Tawd Bridge, Lathom (D.).

C. About Eastham (H.). About Rock Ferry; Old wall about 100 yards beyond Bidston Church (D.). Woodhouses and Overton (J.F.R.). Lane at Higher Tranmere (H.S.F.). Near Backford (Lord de T.; F.M.W.). 1899, Spital Lane, just above Raby Mere (Miss W.).

NOTE.—Almost extinct from the above stations.

- A. marinum** (L.). *Fig. 770.* Sea Spleenwort. Native. P. VI-X.
Maritime rocks. Rare.

L. Dingle rocks (H.). Seen as recently as 1895 (W.P.T.), (?) extinct.

C. Hilbre (H.), there in 1901. Bromborough Pool; West Kirby; Runcorn (D.). Woodhouses, very sparingly (J.F.R.). 1900, "Cheshire side of the River Mersey" (W.P.T.).

- A. *Trichomanes* (*L.*). *Fig. 771.* Wall Spleenwort. Native. P. V-X.

Rocks and walls. Rare.

L. Old stone wall near Cross Keys, Upholland; Tawd Bridge, Lathom Park (*D.*).

C. Wall at Ince (*J.F.R.*). Railway Station at Ince (*R.B.*). 1901, "within two miles of Burton Point" (*w.p.t.*).

- A. *Ruta-muraria* (*L.*). *Fig. 772.* Wall-rue Spleenwort. Native. P. V-IX.

Old walls. Occasional.

L. Wavertree; Halsall; Croxteth garden walls (*w.p.t.*).

C. Old walls at Backford (*Dr. G.*). 1892, Bebington; 1895, Red Noses, New Brighton (*w.p.t.*).

- A. *lanceolatum* (*Huds.*) was recorded from "near Wallasey Windmill" about 1855 (*w.p.t.*).

Athyrium (*Roth.*). Lady Fern.

- A. *filix fœmina* (*Roth.*). *Fig. 773.* Lady Fern. Native. P. VI, VII.

Woods and damp shady places. Frequent.

L. Kirkby.

C. Woods at Bidston; Barnston Dale; Thurstaston; Burton.

Scolopendrium (*Sm.*). Hart's Tongue.

- S. *vulgare* (*Symons*). *Fig. 774.* Hart's Tongue Fern. Native. P. VII, VIII.

Damp and shady places. Occasional.

L. Hale; Dungeon.

C. Great Meols; Shotwick. 1897, Wall on roadside at Spital; 1898, copse N.E. of Ashfield Hall, Neston; 1900, N. end of Dibbinsdale (*Dr. G.*).

F. Mostyn; Ffynnon Groew (*R.B.*).

Cystopteris (*Bernh.*). Brittle Bladder Fern.

- C. *fragilis* (*Bernh.*). Brittle Bladder Fern. Colonist. P. VII, VIII.

C. About 1890, several roots in the crevices of the stone platform at Ince Station. Probably introduced with the lime used for the mortar (*R.B.*).

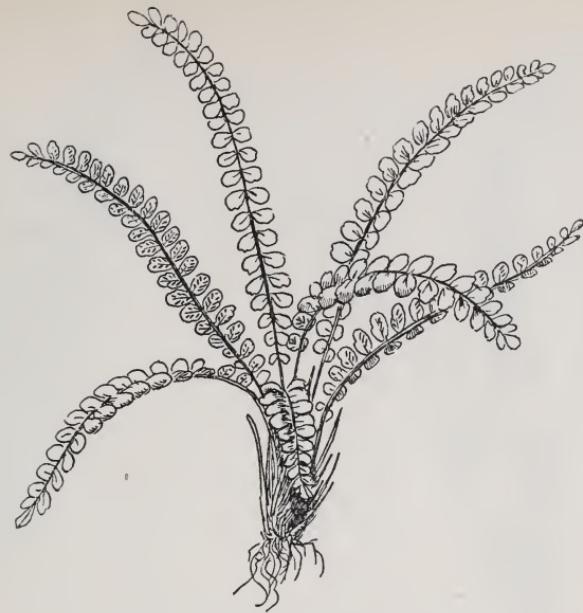


Fig. 771. *ASPLENIUM TRICHOMANES.*



Fig. 772. *ASPLENIUM RUTA-MURARIA.*



Fig. 773. *ATHYRIUM FILIX-FEMINA.*



Fig. 774. *SCOLOPENDRIUM VULGARE.*

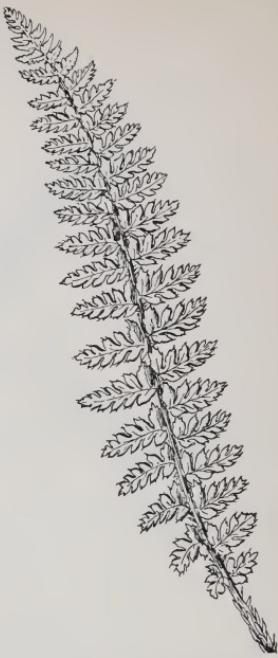


Fig. 775. *POLYSTICHUM LOBATUM.*
b. *Aculeatum.*



Fig. 776. *POLYSTICHUM ANGULARE.*



Fig. 777. *LASTRÆA OREOPTERIS.*

Polystichum (Roth.).

- P. lobatum** (*Presl.*). Soft Prickly Shield Fern. Native. P. VII, VIII.

Hedge banks. Rare.

L. Near Knowsley (D.). Burton Wood near Warrington (J.F.R.).

C. Near Bromborough Pool (D.).

- b. aculeatum** (*Syme*). *Fig. 775.*

Woods and shady places. Occasional.

L. Dean Wood, Upholland.

- P. angulare** (*Newm.*). *Fig. 776.* Angular-leaved Prickly Shield Fern. Native. P. VII, VIII.

Woods and shady places. Occasional.

L. Hedges about Fazakerley and Sefton (D.). Burton Wood, Warrington (J.F.R.).

C. Wood at Bromborough (D.). In woods at Frodsham, Bradley, Sutton, Aston and Rock Savage (J.F.R.). In lane leading from Prenton towards Woodchurch; in fields between Noctorum and Woodchurch; Lane near Hargreave Hall; Lane from Thurstaston towards the river; about one mile E. of Shotwick; Lane between Gayton and Backwood; between canal bridge at Ellesmere Port and the shore at Stanlow (R.B.). Lane E. from Burton to the Marsh; In coombs, &c., near the shore from Dawpool to Heswall; Wood S. of Mollington (Dr. G.; Miss W.). Roadside below Anchor Inn, Irby (Dr. G.).

Lastrea (Presl.). Shield Fern.

- L. Oreopteris** (*Presl.*). *Fig. 777.* Heath Shield Fern. Sweet Mountain Fern. Native. P. VII, VIII.

Heathy places. Occasional.

L. Sandy lanes near Simmonswood Moss; Crosby; Hedges at Rainhill; between Lathom and Skelmersdale; Formby (D.).

C. Shady lanes about Netherton (H.). Sandy lanes near Oxton and Bidston Hills; West Kirby (D.). Overton Hills (J.F.R.). Thurstaston towards Frankby; 1901, by ponds at corner of Chester and Burton Roads (H.B.W.).

- L. Filix-mas** (*Presl.*). *Fig. 778.* Blunt Shield Fern. Male Fern. Native. P. VI, VII.

Woods and shady places. Common.

- L. spinulosa** (*Presl.*). *Fig. 779.* Prickly-toothed Shield Fern. Native. P. VIII, IX.

Woods and damp places. Rare.

L. Hedges about Mossley Hill and Rainhill (D.).

C. Abundant in Stanney Wood (F.M.W.; &c.). 1877, Wood near Dunkirk, S. of Capenhurst; on sandstone rocks by Ince Station (R.B.). 1898, copse in Hooton Park; 1899, Woods near the crossing of Chester and Burton Roads (Dr. G.).

L. dilatata (*Presl.*). *Fig. 780.* Sharp-toothed Shield Fern. Native. P. VIII, IX.
Woods and shady places. Common.

***Polypodium* (*L.*). Polypody.**

P. vulgare (*L.*). *Fig. 781.* Polypody. Native. P. VIII-X.
Walls and hedge banks. Common.

***Phegopteris* (*Presl.*).**

P. Dryopteris (*Fée.*). *Fig. 782.* Oak Fern. Native. P. VI, VII.
(*Polypodium dryopteris*).

Dry shady places. Rare.

L. Rocky bank near the "Cross Keys," Upholland Hill (D.).
C. Ince (J.F.R.). Among the crevices between the stones forming the platform on the S. side of Ellesmere Port Station (F.M.W.; R.B.).

NOTE.—Recent records are desirable.

P. polypodioides (*Fée.*). *Fig. 783.* Beech Fern. Native. P. VII-IX.
(*Polypodium phegopteris*).

Damp shady places. Rare.

L. Steep bank near Carr Mill Dam, St. Helens (D.).
C. Side of lane on the way to Heswall Hill from Claughton (Miss C. G.).

NOTE.—Recent confirmation is required.

***Osmunda* (*L.*). Royal Fern.**

O. regalis (*L.*). *Fig. 784.* Flowering Fern. Royal Fern. Native. P. VII-IX.

Boggy heaths and ditches. Rare.

L. Clegg's ponds, Allerton; near Southport; Sutton Moss; Simmonswood Moss (D.). Burton Wood, Warrington (J.F.R.). Ditch between Lydiate and Altcar; Roadside between Mill Lane, Aughton, and Downholland (R.B.). Parr Flat; Brushey Lane, near Rainford Junction (J.H.L.).

C. Bog near Frodsham (J.F.R.). 1886, Wimbolds Trafford (R.H.D.). Raby (Field Club). 1878, abundant by ponds and ditches between Ness and the Chester Road (c.f.c.).

NOTE.—Frequent search in the Wirral stations has failed to find it down to 1901 (Dr. G.).



Fig. 778. *LASTRÆA FILIX-MAS.*



Fig. 779. *LASTRÆA SPINULOSA.*



Fig. 780. *LASTRÆA DILATATA.*



Fig. 781. *POLYPODIUM VULGARE.*

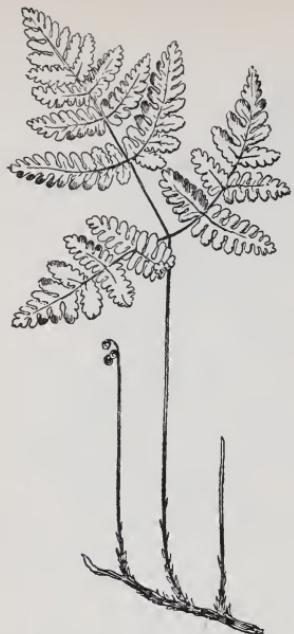


Fig. 782. *PHEGOPTERIS DRYOPTERIS.*



Fig. 783. *PHEGOPTERIS POLYPODIOIDES.*



Fig. 784.
OSMUNDA REGALIS.



Fig. 785.
*OPHIOGLOSSUM
VULGATUM.*



Fig. 786.
*BOTRYCHIUM
LUNARIA.*

Ophioglossum (*L.*). Adder's Tongue.

- O. vulgatum** (*L.*). *Fig. 785.* Adder's Tongue. Native. P. V, VI.
Pastures. Occasional.

L. Near Crosby; Croxteth Park; Sutton Moss (D.). Sankey and Fidler's Ferry, both near Warrington (J.F.R.). Knowsley Park (Dr. W.). Banks of River Alt, between Hightown and Altcar (F.A.). Below Lydiate (Miss W.).

C. Eastham (Field Club). Weaver Valley (J.F.R.). Bidston Marsh (D.). Leasowe to Hoylake, abundantly (Miss W.). Langfields, West Kirby (A.K.B.). Between Gayton and Heswall Hill (R.B.). S. slope of Bidston Hill; Valley of the Fender, below Storeton; Field in Shotwick Dale; by Ponds N. of Ness (Dr. G.).

Botrychium (*Sw.*). Moonwort.

- B. Lunaria** (*Sw.*). *Fig. 786.* Moonwort. Native. P. V-VII.
Pastures. Occasional.

L. Allerton; Southport (D.).

C. Overton Hills (J.F.R.). 1875, on S.E. slope of Heswall Hill (E.D.; R.B.). 1886, Field at Gt. Meols; Leasowe; Links at Hoylake (Miss W.).

EQUISETACEÆ.

Equisetum (*L.*). Horse-tail.

- E. maximum** (*Lam.*). *Fig. 787.* Great Horse-tail. Native. P. IV.
Damp places. Occasional.

L. About the Decoy, Hale (D.). Dungeon (H.S.F.). About Speke (R.B.). Between Thornton and Sefton (F.M.W.). Halsnead (Miss M. L. H.).

C. Rock Savage and Helsby (J.F.R.). Hedge bank between Great Meols and Newton; between Noctorum and Woodchurch; W. bank of Bromborough Pool, between Spital and Bebington; Plantation E. of Grange (R.B.).

F. Mostyn to Ffynnon Groew (R.B.). At Blacon Point (Dr. G.).

- E. arvense** (*L.*). *Fig. 788.* Corn Horse-tail. Native. P. IV.
Fields and waste places. Very common.

- E. sylvaticum** (*L.*). *Fig. 789.* Branched Wood Horse-tail. Native. P. IV, V.

Shady places. Occasional.

L. Crosby (H.). Large wood half a mile beyond Gill Moss Chapel from Kirkby; Billinge Hill (D.). Between Little

Melling and Ashcroft Farm (R.B.). Hedge banks S.E. of Upholland; Ashurst Beacon (Field Club).

C. Alvanley; Appleton (J.F.R.). Bromborough (H.S.F.). Raby (Field Club). Banks of Moors Brook, between Alvanley and Manley; Banks of the Dingle, near the Hooton Hall racing stables, and extending near the brook (R.B.). Hedge bank by road to Poole Hall from the Eastham Road (Miss W.).

E. palustre (*L.*). *Fig. 790.* Marsh horse-tail. Native. P. VI, VII.
In wet places. Common.

b. polystachyum (*Auct.*).

L. Crosby; Formby; &c.
C. 1901, at Meols (Dr. G.).

E. limosuu (*Sm.*). *Fig. 791.* Smooth Naked Horse-tail. Native.
P. VI, VII.

In stagnant water. Common.

b. fluviatile (*L.*).

Common.

E. hyemale (*L.*). *Fig. 792.* Rough Horse-tail. Native. P. VII, VIII.

Damp places. Very rare.

C. Near Parkgate; Gayton; Thurstanston (D.). Sandhills below Heswall (R.B.).

E. variegatum (*Schleich.*). *Fig. 793.* Variegated Rough Horse-tail.
Native. P. VII, VIII.

Sandhills on both sides of the Mersey. Frequent.

L. Blundellsands; Formby; Birkdale.
C. Wallasey sandhills.

a. arenarium (*Newman*) is about as frequent as the type, and in the same situations.

LYCOPODIACEÆ.

Lycopodium (*L.*). Club Moss.

L. Selago (*L.*). *Fig. 794.* Fir Club Moss. Native. P. VI-VIII.
Heaths and Moors. Rare.

L. S. side of Simmonswood Moss (D.).

C. Heswall Hill, sparingly (H.S.F.; F.M.W.). About 1870, at Storeton, now lost (W.P.T.).

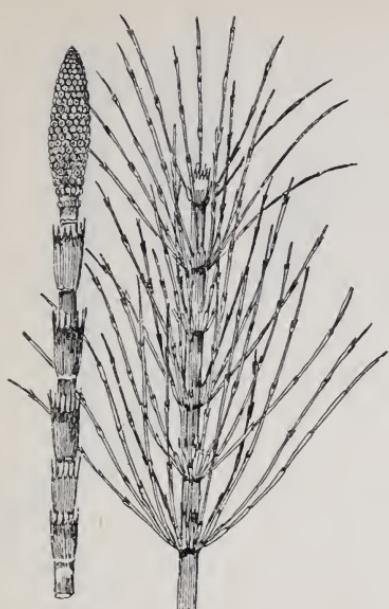


Fig. 787. *EQUISETUM MAXIMUM.*



Fig. 788. *EQUISETUM ARVENSE.*

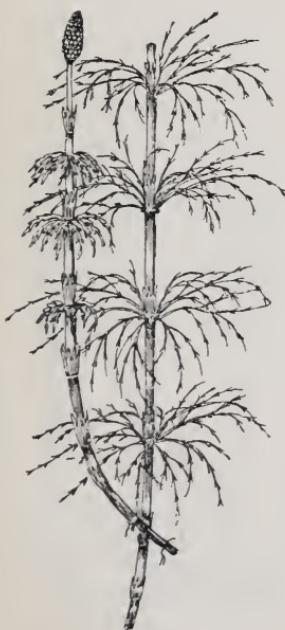


Fig. 789.
EQUISETUM SYLVATICUM.



Fig. 790.
EQUISETUM PALUSTRE.

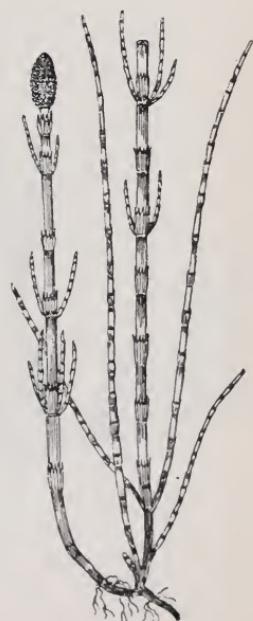


Fig. 791.
EQUISETUM LIMOSUM.

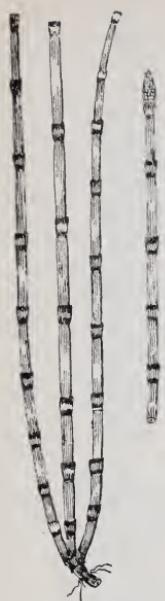


Fig. 792.

EQUISETUM HYEMALE. EQUISETUM VARIEGATUM.



Fig. 793.



Fig. 794.

LYCOPODIUM SELAGO.



Fig. 795. LYCOPODIUM CLAVATUM.



Fig. 796. SELAGINELLA SELAGINOIDES.

L. inundatum (*L.*). Marsh Club Moss. Native. P. VIII, IX.

Boggy places. Rare.

L. Hale (Dr. C.). Formby sandhills (H.S.F.).

C. Marshy spot at the commencement of Bidston Heath, by the side of the road leading from N. Birkenhead (H.). There till about 1891 (W.P.T.). Heswall Hill; Marsh near Thurstanston (D.).

L clavatum (*L.*). *Fig. 795.* Club Moss. Staghorn Moss. Native. P. VII, VIII.

Heaths and moors. Rare.

L. S. side of Simmonswood Moss, near an old fir wood (D.).

C. Storeton (Dr. C.). There till about 1895 (W.P.T.).

SELAGINELLACEÆ.

Selaginella (*Spring.*).

S. selaginoides (*Gray*). *Fig. 796.* Lesser Alpine Club Moss. Native. P. VIII.

Damp heathy places. Rare.

L. Southport (D.). Formby sandhills (H.E.S.).

C. Heswall Hill (H.). Links at Hoylake (Miss W.).

MARSILEACEÆ.

Pilularia (*L.*). Pillwort.

P. globulifera (*L.*). *Fig. 797.* Creeping Pillwort. Native. P. VI, VII.

Lakes and ponds. Rare.

L. By the side of a pond at Allerton, about one hundred yards from the Dog Kennels (H.). Not far from the Hall on Formby Marsh (D.). Forms the chief marginal vegetation of an old peat pit, North Moss Lane, Formby (F.M.W.).

C. Pond, Oxton Heath (F.M.W.; H.S.F.).

CHARACEÆ.

Chara (*Ag.*).

C. fragilis (*Desv.*). *Fig. 798.* Fragile Chara. Native. VI-VIII.

Slow and stagnant waters. Rare.

C. 1894, Langfields, West Kirby (Dr. G.).

d. Hedwigii (*Kuetz.*).

C. 1894, Pools on Bidston Marsh (Dr. G.).

C. contraria (Kuetz.).

L. 1898, Birkdale (J.A.W.).

C. hispida (L.). *Fig. 799.* Rough Chara. Native. VI.

Ponds and ditches. Rare.

L. Fazakerley (H.). 1892, Pond near Birkdale (J.A.W.).

C. Mock-beggar, Leasowe; Bidston (D.).

(var. *gracilis* (Hook.)).

L. Southport (H.).

C. Occasionally in Wirral (D.).

C. vulgaris (L.). Common Chara. Native. V, VI.

Ponds and ditches. Frequent.

b. longibracteata (Kuetz.). *Fig. 800.*

L. 1893, Ditches near Crossens; 1900, Pond near Walton Junction (J.A.W.).

C. 1894, slow stream W. of Newton; Pools on Bidston Marsh; Leasowe; Parkgate; Langfields, West Kirby (Dr. G.).

d. atrovirens (Lowe.). *Fig. 801.*

C. 1894, Bidston Marsh (Dr. G.).

c. papillata (Wallr.).

L. 1897, Pond near the mouth of River Alt (J.A.W.).

Nitella (Ag.).*N. flexilis* (Agardh.). *Fig. 802.* Flaccid Nitella. Native. VI, VII.

Ponds and ditches. Rare.

L. Crosby; Litherland (D.).

N. translucens (Agardh.). *Fig. 803.* Translucent Nitella. Native. A. VIII.

Deep stagnant water. Rare.

L. Clegg's Pits, Allerton (H.). Large pond on the way to Allerton (D.). Pond in Knowsley Park (H.L.H.).

C. Bebington (D.).

N. opaca (Agardh.). *Fig. 804.* Opaque Nitella. Native.

Ponds. Rare.

C. 1875, Pond in field by Heath Lane, Stoke; 1890, Pond near Willaston (R.B.).

Authorities for Characeæ, H. and J. Groves.

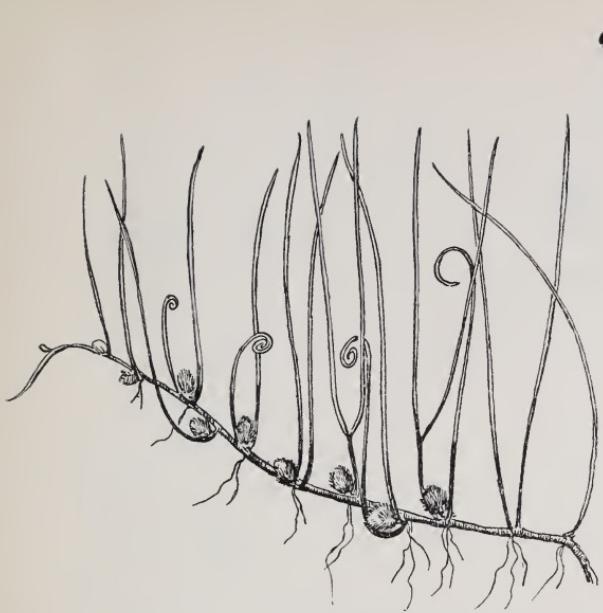


Fig. 797. *PILULARIA GLOBULIFERA*.



Fig. 798. *CHARA FRAGILIS*.



Fig. 799. *CHARA HISPIDA*.



Fig. 800. *CHARA VULGARIS*.
b. *Longibracteata*.



Fig. 801. *CHARA VULGARIS.*
d. *Atro-virens*.

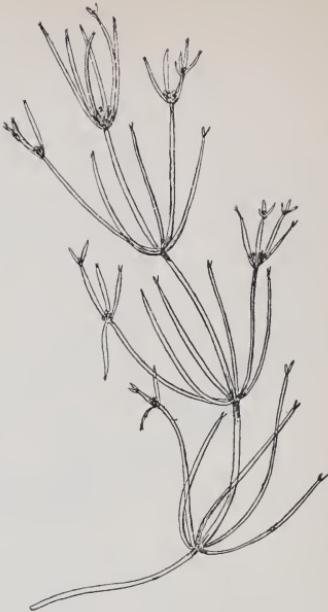


Fig. 802. *NITELLA TRANSLUCENS.*



Fig. 803. *NITELLA FLEXILIS.*



Fig. 804. *NITELLA OPACA.*

THE GEOLOGY OF THE LIVERPOOL DISTRICT.

By J. J. FITZPATRICK,

Queen's Prizeman in Geology, Physical Geography, &c.

THE radius of fifteen miles around Liverpool includes the two important estuaries of the Mersey and the Dee, and it is bounded on the north by Southport, on the south by Chester, on the west by Talacre, in Flintshire, and on the east by Earlestown Junction on the London & North Western Railway. The exact limit has not been adhered to in this paper in the north and south line, which has been slightly exceeded so as to include Chester and Southport.

The solid geology of this district consists to a large extent of rocks of the Triassic System. Within the radius the following formations are represented, in descending order :—

Recent deposits, including blown sand, and Esturine deposits.
Pleistocene, which includes Peat and Forest-beds and Boulder Clay.

Trias.

Permian.

Carboniferous	Coal-measures. Millstone Grit. Carboniferous Limestone.
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The Carboniferous Limestone comes within the radius at Holywell in Flintshire, which is only 14 miles in a direct line from Liverpool. This formation is rich in characteristic fossils, including *Spirifer* and *Productus*, with corals and encrinites. This is the only locality in which the limestone comes within the limited area.

The Millstone Grit formation is usually a hard and durable sandstone, often coarse-grained, which is not developed to any extent in the district, and it is therefore not regarded as of special importance. The quartz grains of which it is composed vary in size and many are angular and sub-angular. It occurs at Knowsley Park, and also at Grimshaw Delf, near Upholland, where it is

faulted against the Lower Bunter Sandstone. The mineral barium has been found in this delf.

The Cefn-y-Fedw Sandstone to the north of Flintshire, at Holywell, Gronant, and Talacre, is supposed to represent the Millstone Grit series in that district.

Although the Coal-measures do not embrace an extensive area in the radius, they are certainly of the greatest commercial value and importance. The strata of this formation are divided into Upper, Middle, and Lower. The Lower Coal-measures at Billinge are, according to Professor Hull, F.R.S., about 1800 feet in thickness. At the Bispham Hall Colliery, near the highest part of Billinge Hill, which is 593 feet above sea-level, the thickness of the coal-seams varies from 1 foot 8 inches to 2 ft 6 inches, the depth of the shaft is only 60 yards, and the coal-seams are worked in what are known as the "Mountain Mines." In the strata of these Lower Coal-measures, as a rule, thin coal-seams only are found, which are therefore not regarded as of special importance to the miner. The Middle, or Productive Coal-measures, are developed about St. Helens and Prescot, and are justly regarded as valuable, and of vital importance to the trade and commerce of the district.

These Coal-measures consist of alternations of sandstones, shales, and coal-seams. At Doulton's Delf, St. Helens, an excellent section in the lower strata of the Middle Coal-measures can be seen. This section is over 100 feet in thickness, and consists of shales, sandstones, pottery clay, and thin seams of coal. The delf is rich in characteristic fossil plants consisting of *Calamites*, *Sigillaria*, *Stigmaria*, *Lepidodendron*, *Lepidostrobus*, *Halonia*, *Cordaites*, *Sphenophyllum*, and ferns. Casts of the trunks of trees such as *Sigillaria* and *Calamites* can be seen standing erect, as if in the position in which they grew.

Out-crops of coal seams occur in the district around St. Helens, and the town is built upon the strata of the Middle Coal-measures. Fish remains occur in these rocks, and the characteristic shells *Anthracosia robusta* and *Anthracosia acuta* are found. The latter is in abundance at Doulton's Delf.

Coal has been mined at various places near Neston, in the peninsula of Wirral, for nearly 150 years. This inlier, or patch of Middle Coal-measures, which is probably the eastern limit of the North Wales Coalfield, is small in extent, and has been preserved by being faulted against the Lower Bunter Sandstone.

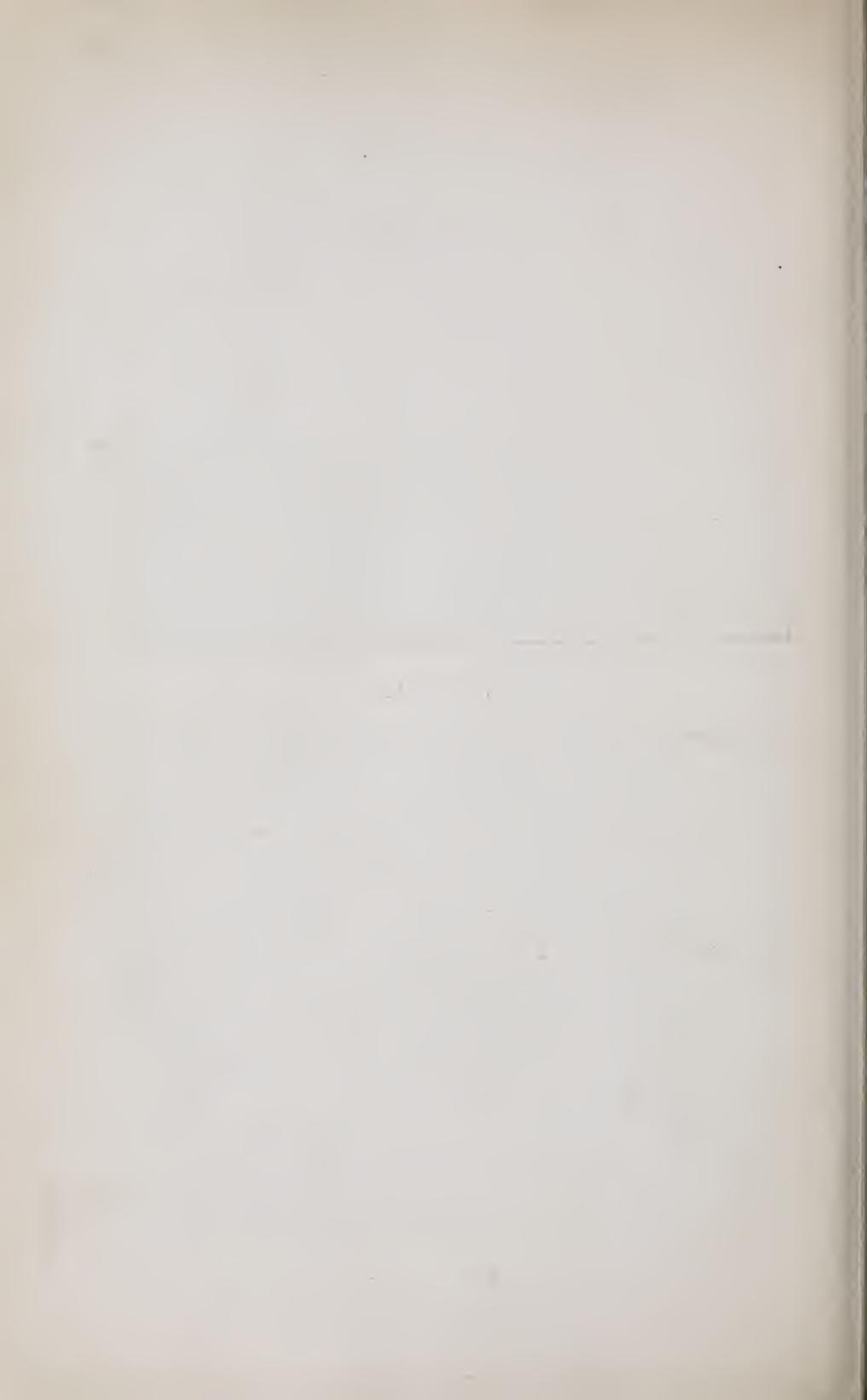
The colliery at Neston, the shaft of which is 450 feet deep,



BIDSTON MILL.



ON BIDSTON HILL.



belongs to the Wirral Colliery Company, and the coal-seams are actually worked under the estuary of the River Dee. This company is now boring in search of coal on the shore at high-water mark opposite Denhall, near Burton Point Railway Station. On 12th October, 1901, the depth reached was 250 feet, without finding coal of workable thickness. Two thin seams of coal of about two inches each were passed through in the boring, and it is likely, owing to numerous faults in the strata of the locality, that workable coal may not be discovered. The writer is much indebted to Mr. James Platt, manager of the Wirral Colliery, and to his sons, Mr. William and Mr. Walter Platt, for much valuable information in connection with the working of the coal-seams in this interesting district, more especially on the occasion of a recent visit made by the members of the Liverpool Geological Society, under the leadership of the writer, to this boring, and also to the coal-pit.

On the Flintshire side of the estuary of the Dee the Middle Coal-measures extend for several miles, and at Mostyn Colliery, which is now full of water, the Middle Coal-measures have been worked for a distance of a mile under the bed of the river.

At the Point of Air a bed of coal is being worked at the present time at the West Mostyn Colliery. This is the most northern part of the North Wales Coalfield. A boring in search of coal was recently made at Bidston Railway Station, when a depth of 2,850 feet is said to have been reached without coming to coal.

The Upper Coal-measures are not regarded as being of much commercial value, as they do not produce coal-seams of sufficient thickness to be workable. The nearest Coal-measure strata to Liverpool are at Croxteth, and belong to this subdivision. Exposures may also be seen in the neighbourhood of Rainhill, Whiston and St. Helens. The Permian strata are not exposed in any outcrops within the area, and their presence is regarded as rather doubtful by geologists.

The following are the subdivisions of the Triassic System, which is developed to such a large extent in the neighbourhood of Liverpool:—

Trias	Keuper	Keuper Marl.
		Keuper Sandstone.
	Bunter	Upper Bunter Sandstone.
		Pebble-beds.
		Lower Bunter Sandstone.

The whole of the peninsula of Wirral, except in the immediate neighbourhood of Neston and Burton, where the Coal-measures border the estuary of the Dee, consists in its solid geology of rocks of Triassic age. These rocks are usually covered with a mantle of Boulder Clay and other comparatively recent deposits. Some of the best building stones are quarried in the Keuper Sandstone at Storeton, Runcorn, and Frodsham. Organic remains are very rare in the strata of the Trias. The Storeton Quarries are celebrated on account of the fossil footprints of an animal supposed to have been a batrachian called *Cheirotherium Storetonense* (Morton). Recently this animal has been named *Cheirosaurus*. Numerous footprints of a smaller reptile known as *Rhynchosaurus* are also found. A fossil plant, *Equisetites Keuperina* (Morton), has also been discovered.

The highest hill in Wirral is Heswall Hill, which is 360 feet above sea-level, the strata being Keuper Sandstone. Bidston Hill is formed of Keuper Sandstone resting on Upper Bunter Sandstone. Thurstaston Hill, which is about 240 feet above sea-level, consists of Upper Bunter Sandstone, with a capping of a coarse rock resembling the basement-beds of the Keuper Sandstone.

The hills about West Kirby are formed of Upper Bunter Sandstone, upon which the Keuper Sandstone rests. At Storeton the Keuper Sandstone is faulted against the Upper Bunter Sandstone, and there is, on the hill to the left hand side of the main road, going south, a small exposure of Keuper Marl, which is at the present time in process of being covered, owing to the filling up of a quarry for building purposes.

The Keuper Marl occurs in the north of Wirral, in the district between Leasowe Castle and Irby, but it is obscured to a large extent by a covering of Boulder Clay. The marl also occurs at Upton, Arrow, Oxton Hill, Moreton, and Saughall Massie. The Waterstones, which are the basement-beds of the Keuper Marl, can be examined at Upton; Lower Keuper Sandstone forms the bed rock at Frankby. At Prenton the Lower Keuper Sandstone rests upon the Upper Bunter Sandstone. The latter subdivision also occurs at Thingwall, Barnston, and Gayton. Hilbre Island, Middle Island, and Little Eye belong to the Pebble-beds.

At the recent cutting at Liscard and Poulton Railway Station, the Lower Keuper Sandstone rests on the yellow strata of the Upper Bunter Sandstone. The Keuper Basement-beds are the solid rocks at Wallasey, Liscard, and Poulton. The Pebble-beds



THE CALDERSTONE OAK.



COTTON GRASS ON KIRKBY MOSS.

occur at Neston, Little Neston, and Ness. Oxton Hill is composed of Upper Bunter Sandstone, Keuper Sandstone, and Keuper Marl. The rocks between Egremont and New Brighton are the Pebble-beds which are faulted against the Keuper Sandstone. On the shore at New Brighton there is a spring of pure fresh water which is, at the present time, covered with sand. This spring issues from a fault, and the remarkable thing is that the spring is below high water mark of the highest tides.

The Waterstones or basement-beds of the Keuper Marl occur in the north of Wirral and around Runcorn and Frodsham. At Burton Point there is an excellent section showing the junction of the Pebble-beds with the Lower Bunter Sandstone.

The solid geology at Seacombe, Birkenhead, Rock Ferry, Bromborough, Eastham, Little Sutton, Willaston, Childer Thornton, and Thornton Hough, are the Pebble-beds. The following is a list of other localities, with the bed rocks :—

Shotwick,	Lower Bunter Sandstone.
Great Saughall,	Do.
Great Sutton,	Pebble-beds.
Capenhurst,	Upper Bunter Sandstone.
Ledsham,	Do.
Eastham Village,	Pebble-beds and Lower Bunter Sand-stone.

The ancient city of Chester is built on the Pebble-beds, and the same beds occur in the section exposed in the railway cutting between Hooton and Little Sutton. The Elizabethan mansion, Pool Hall, is also on these beds.

In the peninsula of Wirral the enormous erosion of valuable land through the action of the tides during the last fifty years has been noted by our leading geologists. This erosion is still going on, although efforts, such as the construction of the Wallasey Embankment, and similar works, have been made to lessen these encroachments of the sea. At Moreton, Meols, and Leasowe this loss of land has been very great. Hilbre Island, Middle Island, and Little Eye, at the mouth of the River Dee, give evidence of this erosion to a remarkable extent even to the most casual observer.

At Helsby and Frodsham the rocks rise to a height of about 500 feet, and the bold escarpment at Helsby, in an admirable section, shows the junction of the Keuper and Bunter Sandstones.

In Lancashire it is found that the solid rock in the Southport district is the Keuper Marl, but it is hidden by recent deposits

of peat, clay, and alluvium. At Ormskirk, the Lower Keuper Sandstone and Upper Bunter Sandstone are the prevailing rocks. The Pebble-beds occur at Hale, Speke, Garston, Woolton, Wavertree, West Derby, Roby, Rainhill, Widnes and Farnworth; and the Upper Bunter Sandstone at Halewood. The solid rocks at Melling, Kirkby, and Knowsley, are the Pebble-beds; at Ince-Blundell the Lower Keuper Sandstone is the prevailing rock, and at Maghull, the Upper Bunter Sandstone. The Lower Keuper Sandstone can be seen at Little Crosby, the Upper Bunter Sandstone occurs at Aintree; the Lower Keuper Sandstone at Lydiate and Great Crosby. At Rufford the bed rock is the Upper Bunter Sandstone, and at Liverpool the Pebble-beds, Upper Bunter Sandstone, and Keuper Marl.

The Boulder Clay, which is essentially a glacial deposit, obscures the solid geology of the Liverpool district to a large extent. This clay must be regarded as an important factor in the growth of vegetation. Thick deposits are found in cliffs on the estuary of the Dee, about Dawpool and Thurstanston. Similar deposits fringe the estuary of the Mersey between Garston and Hale. The Boulder Clay gives evidence that at a comparatively recent period in geological history this neighbourhood was covered with an ice sheet or ice sheets which carried with them, from north to south, either on the surface or embedded in the ice, striated, and other boulders, most of these being specimens of the rocks which prevailed in the countries over which the ice had travelled. Not only are the boulders striated, but the solid rocks over which the ice sheets moved are marked, in many places, with striations of a similar nature. These markings indicate the direction in which the ice sheets travelled.

Characteristic specimens of these boulders may be seen at the side entrance to the Liverpool Museum, William Brown Street, at Leasowe Castle, the Mayer Museum, Bebington, and at Little Neston. At Great Crosby a large boulder of gypsum, nearly twenty tons in weight, which was found in a clay-pit, was recently placed on a pedestal in the centre of the village, by the Great Crosby Urban Council. This is the largest boulder of gypsum that has been found in the neighbourhood of Liverpool. This boulder was probably derived from the Keuper Marl of North Lancashire. Besides the large boulders there were also deposited smaller boulders, as well as gravel, sand, and clay, the latter being used extensively for brick-making. Nearly all the pebbles on the



THOR'S STONE—THURSTASTON COMMON.



HIGHTOWN SANDHILLS.

sea-shore, and in the two estuaries were derived from this clay. Characteristic shells found in the clay are *Turritella tereba* and *Astarte borealis*. *Foraminifera* are also marine shells which are found in abundance. Overlying the Boulder Clay there are submerged forests, peat-beds, and esturine silt. The best known and most interesting of the Peat and Forest-beds is that at Leasowe, which contains trunks of trees, including the oak, pine, ash, elder, yew, and birch. Many of these trees are believed by some to be *in situ*. The Peat and Forest-beds are exposed in several localities, including the estuaries of the Mersey and Dee, the mouth of the River Alt at Hightown, and at Seaforth. In making excavations for the Liverpool docks, beds of this description have been exposed. These forest-beds are indicative of a luxuriant growth of vegetation in comparatively recent times. The existence of these beds on the sea-shore, often below high water mark, according to some geologists proves the gradual but sure subsidence of the land in this district; according to others it indicates oscillations in the level of the sea. Through this subsidence, as well as by the encroachments of the sea by continual erosion, much land has been lost in this district, especially in the northern part of Wirral, in the Post-Glacial deposits. Recent deposits include Tidal silt, or Esturine silt, which covers large areas in the upper reaches of the estuaries of the Dee and Mersey, and has been formed from the deposition of matter by the esturine waters, and its accumulation in the estuary of the Dee has afforded feeding accommodation for thousands of sheep, which eat the grass that grows on the silt, although this grass is always covered by sea-water at spring-tides.

Certain beds of clay and peat are also included in recent deposits. Enormous accumulations of blown sand fringe the coast in the district between Liverpool and Southport. About Formby the large area covered is particularly noticeable. In the peninsula of Wirral, between New Brighton and West Kirby, these sandhills are well seen. This blown sand consists of particles of sea shells blown inland from the sea-shore, and there are also fine particles of silicious and other sands. At Formby and Hightown, about 150 years ago, there was a continual encroachment of these sandhills upon the land, and the Formby of that period was completely overwhelmed by blown sand from the sea-shore. This encroachment was almost entirely stopped by the extensive planting of starr grass, *Ammophila arundinacea*, which proved an effective remedy, assisted by careful embanking.

In the ballast of ships arriving from various countries there are often introduced not only plants which are foreign to the district, but also rocks, minerals and clays. These are deposited on land surfaces, and must exercise considerable influence upon the growth of vegetation. The calciferous portions of the Boulder Clay form excellent soils, and also the lime deposits usually found in the Keuper Marl and the Waterstones. The Carboniferous Limestone of Derbyshire and North Wales is also extensively used for this purpose.

Before concluding it is desirable to state that fuller information may be had by consulting Mr. G. H. Morton's excellent book on the *Geology of the Country around Liverpool*, and also the maps and memoirs of the Geological Survey.

METEOROLOGICAL DATA

EXHIBITING THE SPECIAL FEATURES AND PECULIARITIES OF CLIMATE OF THE WIRRAL PENINSULA, LIVERPOOL AND DISTRICT, AND ALONG THE COAST TO SOUTHPORT AND NEIGHBOURHOOD.

By J. CAIRNS MITCHELL, B.D., F.R.A.S.

As climate has a preponderating influence upon the flora of a district, it is desirable to supply meteorological data for the area under consideration in this volume.

Three places have been selected, not only because they fairly represent the climatalogical conditions within the area dealt with in this book, but also as possessing thoroughly reliable meteorological records extending over a period of years sufficiently long to give approximately accurate averages:—

1st. SOUTHPORT to the north, and on the coast, in latitude $53^{\circ} 39' 2''$ N., longitude $2^{\circ} 59' 4''$ W., and 37 feet above mean sea level.

2nd. LIVERPOOL. The old Observatory stood for twenty years close to the river, on the Waterloo Dock Pierhead, in latitude $53^{\circ} 24' 48''$ N., longitude $3^{\circ} 0' 1''$ W., and 22 feet above mean sea level. For these years, from 1846 to 1865, shade temperature and rainfall observations are available for this station. With 1867, observations began at the new Liverpool Observatory, situated on Bidston Hill, about a mile West of the river, and 197 feet above mean sea level, in a very open and exposed position, in latitude $53^{\circ} 24' 4''$ N., longitude $3^{\circ} 4' 20''$ W.

3rd. CHESTER to the south, and at the head of the Dee estuary, in latitude $53^{\circ} 12' 0''$ N., longitude $2^{\circ} 54' 0''$ W., 59 feet above mean sea level.

I.—TEMPERATURE

(*In shade and sun, on and under ground*)

comes first among the elements of climate that determine the nature and development of plant life.

Three things must be carefully noted about it—*mean and extreme values, variations, and modifying influences*.

TEMPERATURE IN SHADE
(STEVENSON SCREEN, FOUR FEET ABOVE GROUND, OVER SHORT GRASS OR SNOW).

	SOUTHPORT.			LIVERPOOL.			CHESTER.		
	12 YEARS, 1890 TO 1901.		30 YEARS, 1872 TO 1901.	BIDSTON { 30 YEARS 1872 TO 1901 20 YEARS, 1846 TO 1865; Mean.		WATER- LOO DOCK, 20 YEARS, 1846 TO 1865; Mean.	24 YEARS. 1878 TO 1901.		Mean of Max. and Min.
	Absolute Highest	Absolute Lowest	Mean of Max. and Min.	Absolute Highest	Absolute Lowest	Mean of Max. and Min.	Absolute Highest	Absolute Lowest	Mean of Max. and Min.
JANUARY	53° 3	0°	13° 2	38° 5	58° 0	8° 5	39° 3	0°	59° 2
FEBRUARY ...	57° 9	8° 4	20° 2	39 2	61° 9	11° 6	40° 0	4° 5	60° 5
MARCH	66° 3	25° 0	41° 0	65° 4	75° 1	21° 2	41° 8	43° 6	70° 1
APRIL	77° 3	29° 0	45° 6	75° 1	75° 1	26° 1	46° 7	48° 3	78° 5
MAY	80° 7	35° 4	50° 5	80° 2	80° 2	30° 6	51° 3	54° 4	83° 0
JUNE	84° 6	42° 6	56° 9	85° 0	85° 0	38° 1	57° 8	59° 9	88° 0
JULY	88° 4	37° 9	59° 5	89° 1	89° 1	43° 8	60° 4	62° 6	88° 9
AUGUST ...	86° 3	32° 5	63° 0	85° 0	85° 0	43° 7	59° 9	61° 8	87° 7
SEPTEMBER...	82° 5	21° 3	48° 5	82° 4	82° 4	38° 6	56° 4	58° 3	85° 9
OCTOBER.....	67° 3	22° 0	43° 5	72° 0	72° 0	26° 8	49° 6	54° 1	74° 0
NOVEMBER ...	63° 1	7° 2	39° 2	63° 0	63° 0	22° 4	44° 2	45° 1	64° 0
DECEMBER ...	58° 9	7° 2	48° 1	58° 9	58° 9	12° 7	40° 2	42° 2	61° 0
	88° 4	7° 2		89° 1	89° 1	8° 5	49° 0	51° 0	88° 9
									0° 8
									49° 0

In comparing the mean annual range of shade temperature it must be borne in mind that the temperature is more equal near the coast, and is colder in winter and warmer in summer in proportion to the distance inland. Very much of the included area is either on the coast or along the estuaries of the Mersey and the Dee.



THE FENLAND OF WIRRAL.



A MOSS PLANTATION—KNOWSLEY.

The proximity of the sea, therefore, with its equalising influence at Southport and Liverpool, accounts for their smaller mean monthly and annual range, as compared with that of Chester twenty miles inland.

	Mean Temperature.		Mean Annual Range.	
	January.	July.		
Southport	38° 5°	59° 5°	... ...	21° 0°
Liverpool, Bidston ...	39° 3°	60° 4°	... ...	21° 1°
Chester	38° 2°	61° 0°	... ...	22° 8°
For the district	<u>38° 7°</u>	<u>60° 3°</u>	... ...	<u>21° 6°</u>

In considering the effect of temperature on vegetation, not only the shade, but also the open-air temperature in the sun and on the ground must be taken into account to know the effect of direct sunlight and of radiation, as these are the measure of the variations in temperature to which plants are exposed. The necessity for this will become at once apparent when it is known that the heat in the sun is often fully 60° greater than in the shade, and the cold on the ground sometimes fully 19° greater than the shade minimum.

OPEN AIR TEMPERATURE.

	SOUTHPORT.				LIVERPOOL.	CHESTER.				
	7 YEARS, 1895 TO 1901.					7 YEARS, 1895 TO 1901.		9 YEARS, 1893 TO 1901.		
	Absolute highest, in sun, 4 ft. above ground.	Mean.	Absolute lowest, on ground (short grass or snow).	Mean.		Absolute highest, in sun, 4 ft. above ground.	Mean.	Absolute lowest, on ground (short grass or snow).	Mean.	
JAN. ....	... °	62° 3	11° 0	29° 5		84° 2	59° 0	1° 7	29° 8
FEB. ....	... °	72° 0	0° 6	28° 4		94° 5	70° 8	3° 1	29° 9
MAR. ....	... °	88° 0	...	30° 4		108° 5	84° 2	16° 5	32° 0
APRIL ....	... °	99° 0	...	35° 1		116° 3	96° 0	21° 2	35° 7
MAY ....	... °	106° 4	...	37° 9		125° 0	102° 9	26° 4	39° 9
JUNE	135° 1	115° 3	...	46° 4		130° 6	112° 2	31° 1	47° 5	
JULY	138° 8	116° 4	...	49° 5		127° 1	114° 1	38° 5	50° 7	
AUG.	140° 5	113° 1	...	49° 2		128° 5	109° 4	37° 7	30° 1	
SEPT. ....	... °	103° 5	...	46° 9	No observations taken.	119° 0	98° 8	31° 0	46° 2
OCT. ....	... °	88° 4	...	36° 8		107° 2	80° 9	20° 8	39° 2
Nov. ....	... °	70° 5	14° 0	34° 8		92° 5	66° 3	20° 4	35° 4
DEC. ....	... °	58° 9	4° 0	32° 7		88° 3	57° 7	6° 7	32° 5
	140° 5	91° 2	0° 6	38° 1		130° 6	87° 4	1° 7	39° 1	

It is obvious, then, that the temperature ascertained by means of thermometers placed four feet above the ground, over short grass or snow, and sheltered by a louvred screen (Stevenson's) from the direct and reflected rays of the sun, from radiation and evaporation, and very considerably from the wind, is the temperature of the air, but is very far from being the temperature to which plants exposed to all these influences are subject. When the open-air temperature is taken, it is seen that the average mean of our coldest month (January) is fully 45°, which gives sufficient heat to stimulate vegetable growth. The result is that during a mild winter flowers may be in bloom all the time in sheltered nooks, and even when the winter is perfectly normal a few bright warm days will cause vegetation to make a false start. It is no uncommon thing in the spring to see several different sets of leaves thus produced upon rose bushes. The variability of our winters is so great that a difference of *two months* in the time of flowering of many of our *early* wild flowers is not uncommon.

Councillor J. D. Siddall, late President of the Chester Society of Natural Science, who has observed the flowering of our early plants for the past twenty-one years, gives the variations in time of flowering of four early plants as follows:—

	Earliest.	Latest.
Snowdrop	6th Jan., 1894, 1898	20th Feb., 1900
Celandine (<i>R. Ficaria</i>)	18th Jan., 1898	5th March, 1900
Crocus	14th Jan., 1884	19th March, 1886
Coltsfoot	3rd Feb., 1898	16th March, 1900

Besides the shade and open-air temperatures, that of the ground itself plays a not inconsiderable part in determining the character and development of plants. The following figures give the months with mean temperatures below 42°:—

UNDERGROUND MEAN TEMPERATURES, ONE FOOT BELOW THE SURFACE, IN ORDINARY SOIL.

	December.	January.	February.	March.
Southport ...	40·7°	38·0°	38·1°	40·6°
Chester ...	42·5°	40·0°	38·3°	41·1°

The foregoing are the principal *extremes* and *means* of temperature that call for remark.

The following diagram shews the ways in which the temperature within the area *varies* from month to month throughout the

BIDSTON CHURCH—WEST DOOR.

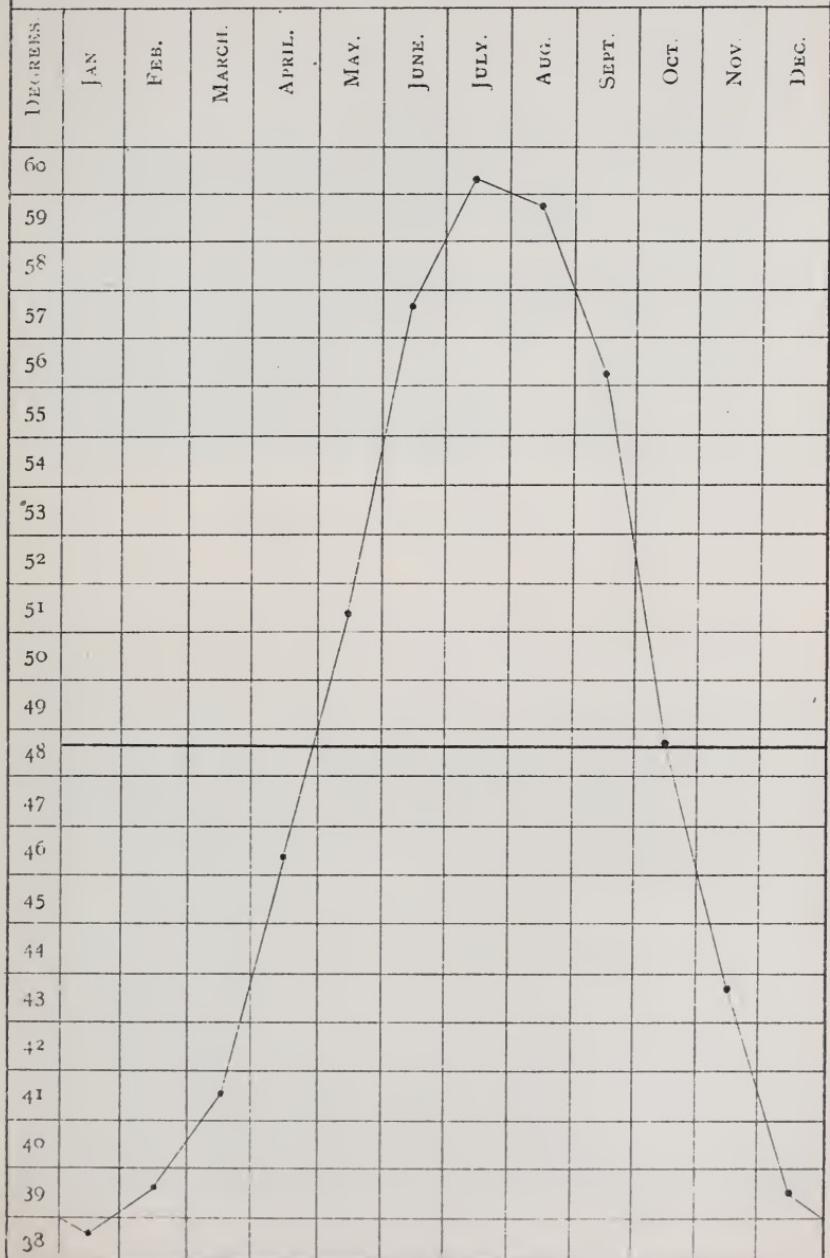


IN THE GROUNDS AT "WESTWOOD," NOCTORUM.



DIAGRAM SHOWING MONTHLY VARIATIONS OF TEMPERATURE
IN AREA.

The heavy line at 48.7° is the Mean Temperature



year. The heavy line across the diagram at $48^{\circ}7$ indicates the mean annual shade temperature of the area.

Had three diagrams been given, one for each of the places specially selected, the mean monthly variation in temperature between Chester and the two coast places would have been at once apparent, the winter being slightly colder and the summer rather warmer at the former, which involves a more rapid rise of temperature in spring and a more rapid fall in autumn, due to its more inland position removing it from the equalising influence of the sea.

VARIATION OF THE MEAN TEMPERATURE FROM MONTH TO MONTH.

FROM COLDEST TO WARMEST MONTH.	SOUTHPORT.	LIVERPOOL (BIDSTON).	CHESTER.
JANUARY TO FEBRUARY	0.7	0.7	1.6
FEBRUARY TO MARCH ..	1.8	1.8	2.4
MARCH to APRIL	4.6	11.3	4.6
APRIL to MAY	4.9	4.6	5.4
MAY to JUNE	6.4	6.5	6.2
JUNE to JULY	2.6	2.6	2.6
FROM WARMEST TO COLDEST MONTH.			
JULY to AUGUST	6.3	0.5	0.8
AUGUST to SEPTEMBER	3.6	3.5	3.8
SEPTEMBER to OCT. ...	7.1	6.8	7.9
OCTOBER to NOVEMBER	5.0	5.4	4.9
NOVEMBER to DEC. ...	4.3	4.0	4.4
DECEMBER to JANUARY	0.7	0.9	1.0
YEARLY RANGE	21.0	21.1	22.8

A few interesting facts, of great importance to plant life and growth in our latitude, will become apparent on an inspection of the preceding table of monthly variations of temperature; first, that the three winter months, December, January and February, have almost the same mean temperature—December and February are the same, and January, the coldest month, only differs by about one degree; second, that July and August are almost the same; and third, that the increase in temperature for the three spring months (as shown in the preceding table) is 11° or 12° , while the decrease in temperature for the three autumn months is 16° or



OLD POND NEAR BROMBOROUGH.



WATER-LILIES, NEAR BROMBOROUGH.

17° ; so very slow is its advance in spring, and so swift its flight in autumn.

Of the influences that *modify* temperature and give special character to the climate of a locality the following need particular attention in connection with vegetation. Liability to frost on the ground in the early summer and autumn months is an element of great value as affecting plant life. There are no open-air temperatures taken at Bidston Hill Observatory, but at Southport and Chester ground temperatures taken in the open air give the following results :—

FROSTS ON GROUND.

Southport, 1890-1901	{	4 years out of 11 in June.
		5 years out of 11 in September.
Chester, 1893-1901...	{	1 year out of 9 in June.
		2 years out of 9 in September.

Ground frosts never fail to appear at Southport in May and October, and only once in about ten years at Chester.

The June and September ground frosts may not affect vegetation greatly when there is only one in the month, and that of slight intensity; but when, as in September, 1894, at Southport, six took place, the results are likely to be disastrous. At Chester, three slight frosts in June, 1894, are the most that have been recorded, but both the May and October ground frosts are liable to be frequent and intense.

Another modifying element of great influence is liability to cold and boisterous winds, especially in spring. The eastern side of the Wirral peninsula and the Welsh coast, the northern coast line and the inland parts in the N.E. of the area, are exposed to the bitter cold N. and N.E. winds that often blow for weeks together in the spring, greatly retarding vegetable growth.

Another element that exerts a very powerful modifying influence is the sea and the estuaries. Near these the temperature does not rise so quickly in the spring as it does inland, and, contrariwise, the autumn lingers longer on our coasts than in the inland and upland parts.

These facts are important in looking for early and late specimens. Sheltered nooks must be sought, where good local covering shields from the prevailing cold winds, and southern slopes expose to the fullest influence of sunshine.

II.—MOISTURE

is the next important element.

RAINFALL.

(INCLUDING SNOW, HAIL AND SLEET).

	SOUTHPORT.		LIVERPOOL.			CHESTER.	
	30 Years, 1872-1901.		WATERLOO DOCK. 20 Years, 1846-65.	BIDSTON HILL. 35 Years, 1867-1901.		26 Years, 1876-1901.	
	Amount	No. of Days.		Amount	No. of Days.		
JANUARY ...	Inches. 2·70	I7	Inches. 1·75	Inches. 2·18	I7	Inches. 2·06	I6
FEBRUARY	2·01	I5	1·28	1·67	I5	1·69	I5
MARCH ...	2·15	I4	1·59	1·68	I5	1·61	I5
APRIL	1·76	I3	1·61	1·62	I4	1·59	I5
MAY	2·07	I3	1·82	1·88	I4	2·05	I3
JUNE	2·25	I3	2·32	2·07	I3	2·43	I4
JULY	3·19	I5	2·67	2·76	I5	2·87	I5
AUGUST ...	3·81	I7	3·06	2·97	I6	3·11	I7
SEPTEMB'R	3·32	I6	2·49	3·00	I7	2·44	I5
OCTOBER...	3·83	I8	2·97	3·56	I9	3·03	I7
NOVEMBER	3·31	I7	2·27	2·70	I7	2·53	I7
DECEMBER	3·05	I8	1·86	2·65	I8	2·55	I8
TOTAL...	33·45	I86	*25·69	28·74	I90	27·96	I87

This should be taken not only in connection with the surface geology, but also with drainage and the character of the soil. Rain falls over the entire area on the average very nearly two days out of three the whole year round.

Snow does not lie for any length of time near the sea, but inland, the land may be covered for weeks in severe winters. It protects vegetation from the effects of frost, fills the underground reservoirs, irrigates, disintegrates, and fertilizes the soil.

* The rain gauge at the old Observatory on the Pierhead at the Waterloo Dock was 30 feet above the ground, which accounts for the less annual amount as compared with Bidston.



THE OLD YEW, EASTHAM CHURCHYARD.



EASTHAM WOOD.

FALLS OF SNOW AT CHESTER AND NEIGHBOURHOOD FOR
ELEVEN SEASONS.

October ... 2	January ... 25	April 2
November ... 7	February ... 26	May 2
December ... 16	March ... 14	

Droughts are an important element in plant life. A drought is more than fourteen consecutive days without any rain. Droughts are sure to take place in the northern part of the area in two years out of three on the average; several may take place in one year, as in January, March, and August of 1880. Only five times in the past thirty-five years have there been droughts of three weeks or more. The longest being twenty-six days—8th June to 3rd July, 1887. In the southern parts droughts occur rather more frequently, three years out of four on the average, and one in three may last for three weeks. The longest in the last twenty-one years was twenty-eight days—8th August to 4th September, 1880.

RELATIVE HUMIDITY.

	SOUTHPORT.		LIVERPOOL.	CHESTER.	
	20 YEARS, 1872-91.	10 YEARS, 1891-1901.	30 YEARS, 1872-1901.	24 YEARS, 1878-1901. 1878-1890, 1891-1901, 13 YEARS. 11 YEARS.	
	9 a.m.	9 a.m. and 9 p.m. Mean.	9 a.m. and 9 p.m. Mean.	9 a.m.	9 a.m. and 9 p.m. Mean.
JANUARY	%	%	%	%	%
JANUARY	88	88	85	88	88
FEBRUARY ...	88	86	86	87	88
MARCH	85	84	81	82	85
APRIL	80	80	76	76	81
MAY	77	77	75	71	79
JUNE	77	78	76	72	79
JULY	80	78	76	74	77
AUGUST	81	80	77	77	81
SEPTEMBER ...	83	82	79	81	85
OCTOBER	85	85	80	84	87
NOVEMBER ...	88	87	84	86	88
DECEMBER ...	88	88	86	88	89
	83	83	80	80	84

This gives the amount of moisture contained in the atmosphere in the form of invisible vapour, and is of the greatest importance to vegetation.

DEW, with its refreshing influence, is a frequent phenomenon in our latitude. It has been observed at Chester the following number of times during the past nine years:—

March 59	June 38	September ... 75
April 71	July 43	October ... 89
May 57	August 89	November ... 67

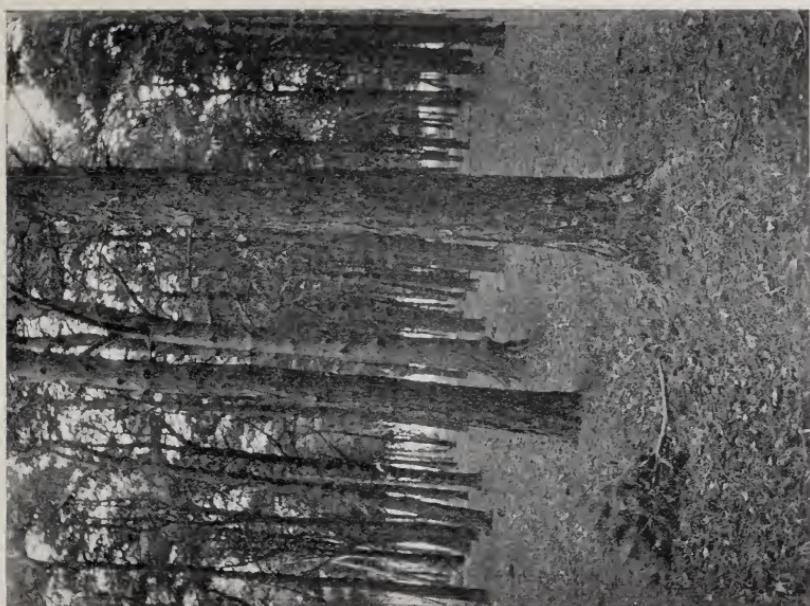
And last, but by no means least as important factors in plant life calling for mention even in such a mere outline sketch as this, are the twin elements of

III.—BRIGHT SUNSHINE AND CLOUDINESS.

BRIGHT SUNSHINE.

	SOUTHPORT.	LIVERPOOL.	CHESTER.
	10 YEARS, 1892-1901. % of greatest possible amount.		6 YEARS, 1896-1901. % of greatest possible amount.
JANUARY	17·2		16·9
FEBRUARY	25·0		26·0
MARCH	38·5		27·2
APRIL.....	45·5		41·5
MAY	50·0		44·1
JUNE	46·1		41·8
JULY	44·1		44·9
AUGUST	40·7		40·2
SEPTEMBER	38·5		36·3
OCTOBER	30·8		30·0
NOVEMBER	16·9		14·9
DECEMBER	11·8		13·4
<i>Annual percentage ...</i>	33·8	—	32·3

It must be borne in mind that these percentages are not of sunshine but of *bright* sunshine, such as the unclouded sun gives half-an-hour after rising until half-an-hour before setting. During the remaining part of the percentages the sun is obscured more or less by haze, mist, fog, or cloud.



PINE ON STORETON HILL.



BEECH IN EASTHAM WOOD.

AMOUNT OF CLOUD.

	SOUTHPORT.	LIVERPOOL. (BIDSTON.)	CHESTER.	
	30 YEARS, 1872 TO 1901.	30 YEARS, 1872 TO 1901.	24 YEARS, 1878-1901. 1878-1890, 13 YEARS.	1891-1901, 11 YEARS.
	9 a.m. & 9 p.m. Mean.	9 a.m. & 9 p.m. Mean.	9 a.m. Mean.	9 a.m. & 9 p.m. Mean.
JANUARY	○ 7·4	○ 7·1	○ 7·3	○ 7·0
FEBRUARY ...	7·1	7·0	7·3	7·0
MARCH	6·6	6·3	7·2	6·1
APRIL	6·6	5·8	7·1	5·8
MAY	6·7	5·6	6·9	6·2
JUNE	7·6	6·1	6·9	6·5
JULY	7·3	6·2	7·5	6·5
AUGUST	7·1	6·3	7·3	6·6
SEPTEMBER ...	6·7	6·1	7·3	6·3
OCTOBER	6·6	6·6	7·2	7·0
NOVEMBER ...	7·3	6·4	7·4	7·1
DECEMBER ...	7·5	7·0	7·4	7·4
<i>Annual Mean...</i>	7·0	6·4	7·2	6·6

Town smoke and the impurities that load the atmosphere in the neighbourhood of manufacturing centres must not be overlooked in their effects on plant life.

ACCUMULATED HEAT IN "DAY-DEGREES."

When all the varied elements of climate, with their delicate and subtle interplay of influences that affect vegetation are considered, it will be found that the stirring of the vital forces in the plant is not the result of any one element directly, but of their combined action. Each plant seems to need a definite amount of this combination of forces to awake and stimulate its vitality. An easy and approximately correct method of determining this in the case of any plant is the following:—

42° shade temperature is accepted as the critical value or base line, and every accession of heat is mainly effectual in starting and maintaining the growth, and in completing the ripening of plants in such a climate as ours. "The accumulated temperature is expressed in 'day-degrees.' A day-degree signifies 1° Fahrenheit of excess or defect of temperature above or below 42°,

continued for 24 hours, or any other number of degrees for an inversely proportional number of hours."

When the temperature during any period remains either above or below the base temperature, the difference between the base and the mean temperature gives, approximately, the accumulated temperature.

A note being kept from the beginning of the year, day by day, of this accumulated temperature, and the day-degrees below 42° deducted from those above it, it will be found that a definite number of day-degrees in excess is needed for the flowering and ripening of each kind of plant. It is of advantage when these phytological observations are made by the same person and on the same plants from year to year. The plants selected should not be in a very sheltered situation nor, on the other hand, in too exposed a position. "A plant is to be considered" in flower "when the stamens on the *first* blossoms on it *first* become visible." In other cases when either the stigma is mature or the anthers burst. In the case of the Hazel the fertile flowers are to be observed. The "first flowering" observations mean, of course, those of the blossoms produced from the ordinary growth of the current season.

ERRATA.

Page 6, for R. Sardous read R. sardous.

Page 6, for R. hirsutus read R. hirsutus.

Page 52, for P. malus read P. Malus.

Page 125, under the figure of the Yew, for Toxus read Taxus.

Page 126, under the figure of the Birds-nest Orchid, for N. Nidus-airs read N. Nidus-avis.

Page 131. The line *Allium (L.) Garlic* should be placed above *A. Ampeloprasum*.

ADDENDA, 1902.

****Delphinium Ajacis*** (*Reichb.*).

L. Halsall (Miss W.).

****Erysimum virginicum***.

C. Birkenhead Docks (J.A.W.).

****Sisymbrium pannonicum*** (*Jacquin*).

L. Bridge over railway close to Seaforth Barracks (J.A.W.).

****Sisymbrium polyceratum*** (*L.*).

C. Birkenhead Docks (J.A.W.).

****Lepidium perfoliatum***.

L. Shore at Blundellsands (Miss W.).

Teesdalia nudicaulis (*R. Br.*).

C. Lane leading to shore at Denhall (Dr. G.).

Crambe maritima (*L.*).

C. Shore at Dawpool (J. D. Siddall).

Viola odorata (*L.*).

C. Hedge bank in Burton Wood (Dr. G.)

Dianthus deltoides (*L.*).

C. About forty large plants near Leasowe Castle (Dr. G.)

****Saponaria Vaccaria*** (*L.*).

C. Between Wallasey and New Brighton in a disused chicken-run (Miss Priestley, per Miss W.). Introduced with seed.

Saponaria officinalis (*L.*). *puberula* (*Syme*).

L. Sandhills at Blundellsands (J.A.W.).

Lychnis Githago (*Lam.*).

L. Cornfield at Hightown (J.A.W.).

Arenaria serpyllifolia (*L.*). *Lloydii* (*Jord.*).

L. Sandhills at Blundellsands (J.A.W.).

Geranium pratense (*L.*)

C. A large plant on roadside close to Denhall House (Dr. G.).

Trigonella purpurascens (Lam.).

C. Roadside between Ness and Burton; abundant and large on Grange Hill by the side of the path leading to the Hill Houses, in company with *Sedum anglicum* and *Trifolium striatum* (Dr. G.). Bidston Hill, to the E. of the iron bridge over Vyner Road (Miss W.).

***Trifolium incarnatum (L.).**

C. Roadside close to Ness (Dr. G.).

Trifolium striatum (L.).

C. Side of road leading to Denhall shore; on Grange Hill below the landmark, close to the station for *Anchusa*; also in quantity by the side of the path leading to the Hill Houses (Dr. G.). Near the sandhills at Leasowe (Miss W.).

Rubus leucostachys (Sm.).

L. At Hightown; Little Crosby (J.A.W.).

Potentilla argentea (L.).

L. Path by the canal at Ford (J.A.W.).

Epilobium obscurum (Schreb.).

L. Halsall (Miss W.).

Bupleurum rotundifolium (L.).***Caucalis latifolia (L.).**

C. Between Wallasey and New Brighton in a disused chicken-run (Miss Priestley, per Miss W.) Introduced with seed.

Caucalis nodosa (Scop.).

C. Lane leading to the shore at Denhall (Dr. G.).

***Matricaria discoidea (L.).**

L. Halsall (Miss W.).

C. Temple Road, Oxton; Town Lane, Rock Ferry; near Hargreave Hall Farm (Miss W.).

Campanula rapunculoides (L.).

L. Halsall (Miss W.). Sandhills at Blundellsands (J.A.W.).

***Anchusa sempervirens (L.).**

C. Burton, on the top of a wall bordering the lower road going W. (Dr. G.).

Orobanche minor (Sm.).

L. Halsall, abundant in a clover field (Miss W.). Clover field close to L. Crosby Church (J.A.W.).

Mentha sativa (*L.*). *a. rivalis* (*Lond. Cat.*).

L. Canal bank between Ford and Seaforth (J.A.W.).

Origanum vulgare (*L.*).

C. By roadside descending Storeton Hill going towards Clatterbridge (Miss W.).

***Salvia verticillata**.

C. Birkenhead Docks (J.A.W.).

***Leonurus Cardiaca** (*L.*).

C. Waste ground by Waterpark Road, Prenton Hill (Dr. G.).

Rumex crispus (*L.*). *a. trigranulatus* (*Syme*).

L. Mouth of R. Alt (J.A.W.).

C. Birkenhead Docks (J.A.W.).

INDEX.

Asterisks prefixed to names of plants denote that they are aliens.

Italics indicate alternative names of plants that are not adopted in this volume.

There are 1,060 species mentioned in this volume.

There are 1,817 entries in this Index.

Immediately preceding this Index will be found Addenda to the Flora that have been noted in 1902 since the body of the work has been in print.

A few Errata are also noted in this place.

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